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LIST OF CONTRIBUTORS

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ORIGINAL ARTICLES

TUBERCULIN—A NEW TECHNIQUE

ITS PLACE IN DISPENSARY PRACTICE AND IN THE AMBULATORY
TREATMENT OF PULMONARY TUBERCULOSIS

BY HALLIDAY SUTHERLAND, M.D.

*Fellow of the Royal Society of Medicine, Medical Officer to the
St. Marylebone Tuberculosis Dispensary
London, England*

INTRODUCTION

The use of tuberculin in dispensary and outpatients practice is not new either in Europe or in America. In 1903 Petruschky had established "Etappen" or "Tuberculin-Stationen" at Danzig, Breslau and at Stettin. These institutions were for the ambulant treatment of selected cases by tuberculin on the reactionless method, and for the continuation of a tuberculin course which had been commenced in sanatoriums. By 1905, Denys had treated more than one thousand outpatients with tuberculin at the Bacteriological Institute of Louvain. Tuberculin has been largely used at tuberculosis dispensaries—as at the Royal Victoria Dispensary in Edinburgh, where this agent has been employed by R. W. Philip since its introduction; at the Phipp's Institute, Baltimore; and at similar institutions in America. It is in use at all the tuberculosis dispensaries in London. In Australia, and more recently in London, Wilkinson has advocated special institutions for this treatment. Since the functions of the tuberculosis dispensary have now received universal recognition, and as tuberculin is being used, not only with safety, but with excellent results at these centers, there does not appear to be any justification for decentralizing tuberculin therapy. It is essential to remember that while in tuberculin we have without question our most valuable therapeutic agent for the treatment

of tuberculosis, yet it represents but one arm in the wider campaign for the control and eradication of this disease. The experience of the writer dates from 1906, when, in collaboration with Henry Clarke, he treated outpatients with T.R., controlled by opsonic estimations, at the Liverpool Hospital for Consumption and Diseases of the Chest; later at a tuberculin clinic instituted in 1907 at the Clinic of Doctors Mackay and Macdonald, Huelva, Spain; and more recently at the Royal Edinburgh Asylum, at the Royal Victoria Hospital, under the supervision of Sir Robert Philip, and at the St. Marylebone Tuberculosis Dispensary, where tuberculin has been extensively used since 1910.

DESIGN OF TUBERCULIN TREATMENT

The design of tuberculin treatment is the production in the organism of a general immunity to the toxic action of tuberculin, with which is associated in varying degree a relative immunity to the tubercle bacillus.

POLYVALENT TUBERCULIN

In a contribution dealing with the practical aspects of the administration of tuberculin in dispensary practice, it would be out of place to digress on the theories of tuberculinotherapy. At the same time, as I believe that the Polyvalent Tuberculin, as used at the St. Marylebone Tuberculosis Dispensary, best meets the object of tuberculin treatment, it is necessary to indicate briefly the considerations which led to its adoption in the ambulatory treatment of pulmonary tuberculosis. According to Sahli, all tuberculins contain the same active chemical substance, the true tuberculin. He reasons that physiological experiment indicates all tuberculin reactions to be qualitatively identical. Now we know very little of the chemical nature of tuberculin, and our physiological tests are qualitative and not quantitative. Moreover, Béraneck has demonstrated the existence of an exo—and of an endo—toxin. Again, complete and lasting immunity has not yet been produced either in man or in animals by the use of tuberculin, while it is also certain that an immunity to tuberculin may not correspond to an immunity to tuberculosis. I submit that if tuberculin were absolutely identical with the living tubercle bacillus, it is difficult to imagine how an organism infected with the second would give an immunizing response to the first. On the other hand, if tuberculin were entirely different from the living tubercle bacillus, an immunity to the one would not represent an immunity to the other. On this reasoning, the more a tuberculin corresponds, without absolute similarity, to the living virulent tu-

bercle bacillus, the more likely is an immunity towards tuberculin to be associated with an immunity to tuberculosis. On the clinical side, it occurred to me in October, 1911, that since all who had any experience of different tuberculins reported excellent results in certain cases and indifferent results in others, this discrepancy might be due, in those patients who did not do well under treatment, to the tuberculin employed not sufficiently approximating in its chemical constitution to the tuberculous toxins in the patient's system. If this hypothesis were correct, then a tuberculin containing as many different forms of the tuberculous toxin as is practicable might yield more uniform results. Since then Polyvalent Tuberculin of the following constitution has been employed:

<i>Polyvalent Tuberculin</i>	<i>Amounts in</i>	
	<i>1 c.c. or in 10 c.c.</i>	
Tuberculin Koch .....	.025 c.c. or	.25 c.c.
Bovine Tuberculin .....	.025 c.c. or	.25 c.c.
Vacuum Tuberculin .....	.025 c.c. or	.25 c.c.
Bovine Vacuum Tuberculin .....	.025 c.c. or	.25 c.c.
Tuberculin T.R. ....	.05 c.c. or	.5 c.c.
Bovine Tuberculin T.R. ....	.05 c.c. or	.5 c.c.
Bacillary Emulsion .....	.033 c.c. or	.33 c.c.
Bovine Bacillary Emulsion .....	.033 c.c. or	.33 c.c.
Polyvalent Bacillary Emulsion .....	.034 c.c. or	.34 c.c.
T.O.A. ....	.35 c.c. or	3.5 c.c.
P.T.O. ....	.35 c.c. or	3.5 c.c.
	<hr/> 1 c.c.	or 10 c.c.

The late Professor Arloing, of Lyons, proved that cattle could be immunized by inoculation of an attenuated culture to a lethal dose of a virulent culture, although this immunity was not absolute or lasting. This would suggest the possibility of using an autogenous attenuated culture. Such a procedure presents many difficulties, and the nearest approach to this ideal is the polyvalent vaccine.

THE SELECTION OF PATIENTS

Tuberculin in dispensary practice is used for diagnosis, for prophylaxis and for treatment. The selection of patients to whom it may be applied in diagnosis is a subject which could only receive adequate treatment in a consideration of the differential diagnosis of pulmonary tuberculosis. As a prophylactic agent, tuberculin is used in noninfected cases exposed to massive infection, and also in that large group of "tuberculous seedlings"—the potential cases of the future—in whom during childhood there is definite evidence of tuberculous infection. When we come to the selection of patients for tuberculin treatment from among those suffering from active pulmonary disease, there arises a threefold clinical problem. Apart

from his clinical condition, the patient's mode of life must be determined—whether his work be constant or intermittent, and the presence of any debilitating influence, such as alcohol. If these factors be not known, it may be quite impossible to prevent auto-inoculation, which, in addition to the tuberculin, may render the results of treatment uncertain. Again, the patient must be intelligent enough to take his own temperature, and to appreciate and to report the presence of certain sensations, symptoms, and signs, and have sufficient will power and confidence in his physician to continue a routine which, even in the best cases, is necessarily of some months' duration.

THE STAGE OF THE DISEASE

In considering the clinical condition of the patient in relation to the proposed administration of tuberculin, it is necessary to decide not only at what stages in the disease it should be administered, but *when* it should be exhibited. An instance will make this distinction clear. One is frequently asked if tuberculin should be given in Stage I, Stage II, or in Stage III, and the reply which answers the question according to its folly is yes and no. Tuberculin should only be given where it will produce an immunizing response. There are times in the history of a case in, let us say, Stage II in Turban's Classification, when tuberculin will have this effect. At other periods in the same stage it will have a baneful influence. It is clear that in the production of an immunizing response two factors must be considered—the degree of existing systemic intoxication and the amount of tuberculin injected. To discuss the selection of cases for tuberculin treatment in terms of a purely anatomical classification such as Turban's is manifestly impossible, since it takes no cognizance of the patient's general condition. A patient in Stage III (Turban), whose general condition is good, is a better and more hopeful case for tuberculin, and, indeed, for any other treatment, so far as the immediate prognosis is concerned, than a patient in Stage I with marked general disturbance. This fact has been much exploited by the unscientific at the expense of the innocent in statements regarding the results of tuberculin treatment. Again, to pick out certain phenomenon, all of which go to represent a patient's general condition—such as degree of temperature, rate of pulse, and functional disturbances of other systems—and in terms of these to attempt to lay down rules for the selection of cases, is to approach and to leave the question in obscurity. On these grounds, it appears to me to be utterly impossible to write anything of the slightest value on the subject, except in terms of a

classification, such as Philip's, which gives due expression to the local and general condition of the patient, and thus ensures an accurate presentation of the severity of the disease. I therefore quote the "Address in Medicine" at Belfast:

PHILIP'S CLASSIFICATION

"The prognosis and treatment of a given case are governed by the degree of systemic intoxication rather than by the extent of local change. For, on the one hand, the local change may be extensive, and yet the prognosis remain comparatively good because of the absence of systemic disturbance. On the other hand, the local lesion may be relatively slight and yet the prognosis be serious because of the disproportionate degree of intoxication. On that account, I prefer a classification which gives approximately just expression to both the local and the systemic disturbances. Adopting the symbol L. for the local or lung lesion, and admitting these stages as in the classification just referred to (Turban), we may speak of L_1 , L_2 , L_3 . To express systemic involvement, I use the symbol S. By the simple device of combining variously capital or small letters, the diagnosis can be expressed with reasonable accuracy. Thus, taking an early process in the lung, we can state the various possibilities as L_1S , that is, an early local process, with relatively slight systemic disturbance, or L_1S , that is, an early local process with equivalent systemic disturbance, or l_1S , that is, an early local process with excessive systemic disturbance. It matters not what degree of local change be present, whether L_1 or L_2 or L_3 , the same principle of classification is available. Thus L_3S indicates a case of extensive lung disorder with vomica formation, but comparatively slight systemic intoxication, while l_2S indicates a case where, with the local process one of infiltration only, systemic intoxication is excessive. The presence of complications is indicated by the symbol + followed by the reason, for example, $l_2S + \text{ent. tub.}$, i.e. the case just described with complicating tuberculous enteritis."

I make no apology for quoting the above *in extenso*, because I am convinced that on Philip's Classification the selection of patients, not alone for tuberculin treatment, but for every other form of treatment, general, surgical, therapeutic and administrative, is rendered at once accurate, scientific and comprehensive. According to this, cases of pulmonary tuberculosis may fall into one of twelve groups, represented as:

L_1 , L_1S ; L_1S ; l_1S ; L_2 ; L_2S ; L_2S ; l_2S ; L_3 ; L_3S ; L_3S ; l_3S .

From these groups we may select at once for tuberculin treatment at a tuberculosis dispensary all those patients, other factors being favorable, in whom systemic disturbance is absent or slight. These are likely to give an immunizing response to tuberculin, and are able to attend the dispensary without interference with their occupation. A few examples will suffice.

CASES SUITABLE FOR TUBERCULIN TREATMENT

The early tuberculous infection of childhood is represented by L_1 and L_2 . Such should have a prophylactic course of tuberculin at a tuberculosis dispensary. Again, L_3 indicates old arrested le-

sions, and here tuberculin may be given with the intention of preventing a relapse, as in the case of a woman going through pregnancy with old disease once arrested at a sanatorium. In L_1s and L_2s we have cases in which the active onset is recent, with slight systemic intoxication, without marked evidence of ill health, and with little impairment of working capacity. For these, dispensary and tuberculin treatment are indicated. The symbol L_3s represents old standing chronic disease, with little systemic intoxication, and is, therefore, suited for ambulant tuberculin treatment. The group L_3S represents extensive local disease, with equivalent general disturbance. Such cases are too advanced for sanatorium treatment, and should be treated either at home from the dispensary or in hospital. Under certain conditions, to be enumerated later, tuberculin may be given. Patients from all the above groups have been treated with tuberculin at the St. Marylebone Tuberculosis Dispensary. By L_1S we indicate early local disease, with equivalent systemic intoxication. Here the systemic intoxication should be controlled by rest in bed at home, and when the large S has been converted to a small s, the patient may be treated with tuberculin either at a dispensary or at a sanatorium, according to the stability of the small s. In the group L_1S we have an early process, with excessive systemic intoxication, which must be reduced by absolute rest under optimum conditions of hygiene and aerotherapy, either at home or at a sanatorium, before tuberculin may be employed. The symbol L_2S represents the case of moderately extensive local disease, with equivalent systemic intoxication. Among this group are the patients requiring six months' sanatorium treatment, after which tuberculin may be continued at a dispensary. Again, l_2S would include such a case as the following: acute extensive onesided disease, with great systemic intoxication. This was controlled by the operation of pneumothorax in hospital, after which tuberculin was given at the dispensary. In the group l_3S we have the acute tuberculous bronchopneumonias and the Rapid Phthisis of Trousseau, where death may be expected within a few months of the onset of the disease. For such cases, hospital treatment is essential. It should be stated that the above represents types of cases as they have occurred in my own experience, but that in no sense are they intended to serve as an exhaustive illustration of Philip's Classification.

PRECAUTIONS IN ADMINISTERING TUBERCULIN

On deciding to give a patient tuberculin treatment, he is provided with a thermometer, supplied gratis or at cost price by the

dispensary, according to the patient's circumstances. Temperature charts are supplied in the same way, and the patient is instructed in their use by the dispensary sister or nurse. In addition to charting the temperature, the patient is required to record on his chart the pulse rate and the daily amount of sputum. He is kept under observation by the doctor, who examines him on his knowledge of these measures, until the patient has become proficient enough to be trusted in keeping an accurate record. The time required for this naturally varies from a week to a month, according to the intelligence of the patient. Occasionally a patient is unable to learn, and in such cases arrangements must be made for a district nurse to take the temperature, night and morning, at the patient's home. It is generally possible to decide by the appearance of the temperature chart whether it has been rightly or wrongly charted. Female patients are required to draw a black line on the chart during the menstrual period. This enables one to avoid injecting patients during the menses, and also to be on guard for the premenstrual rise, which might stimulate a reaction. Pregnancy is not a contraindication to tuberculin, even with a slight degree of albuminuria. The temperature should be taken at 8 A.M., 4 P.M. and at 8 P.M. Maximum temperatures usually occur at 4 P.M. I am satisfied that rectal temperatures are the most accurate. In a sanatorium, one has never experienced any difficulty in getting patients to take their temperatures in this way, but to the majority of dispensary patients it is most inconvenient, since their days are spent in workrooms or in overcrowded homes. In these cases temperatures in the axilla are more reliable than readings taken from the mouth.

METHOD OF ADMINISTERING TUBERCULIN

Pure polyvalent tuberculin is prepared by measuring with a graduated pipette the stated quantities to make up 10 c.c. in a sterile stoppered bottle, which is shaken to ensure thorough mixing. From this nine dilutions are made, each ten times weaker than its predecessor. These dilutions are very easily prepared. Nine glass stoppered bottles of a capacity of 25 c.c. (Baird and Tatlock) are cleansed, sterilized and marked D, D₂, D₃, D₄, D₅, D₆, D₇, D₈, D₉. Into each is measured 18 c.c. of .8 per cent. sterile NaCl solution (compressed NaCl tablets to make this solution are obtainable from all makers). The dilutions must be prepared in the cold. To make D add 2 c.c. of pure polyvalent tuberculin to the 18 c.c. of sterile saline in the bottle marked D and mix well. Again, D₂ is prepared by adding 2 c.c. of D to the sterile saline in bottle marked

D₂, and so on. The amount of polyvalent tuberculin in 1 c.c. of each dilution will be as follows:

- 1 c.c. Polyvalent Tuberculin—Pure = 1 c.c. Polyvalent Tuberculin.
 1 c.c. Dilution 1—(1 in 10)—(D₁) = $\frac{1}{10}$ c.c. or .1 c.c. Polyvalent Tuberculin.
 1 c.c. Dilution 2—(1 in 100)—(D₂) = $\frac{1}{100}$ c.c. or .01 c.c. Poly. Tub.
 1 c.c. Dilution 3—(1 in 1000)—(D₃) = $\frac{1}{1000}$ c.c. or .001 c.c. Poly. Tub.
 1 c.c. Dilution 4—(1 in 10,000)—(D₄) = $\frac{1}{10000}$ c.c. or .0001 c.c. Poly. Tub.
 1 c.c. Dilution 5—(1 in 100,000)—(D₅) = $\frac{1}{100000}$ c.c. or .00001 c.c. Poly. Tub.
 1 c.c. Dilution 6—(1 in 1,000,000)—(D₆) = $\frac{1}{1000000}$ c.c. or .000001 c.c. Poly. Tub.
 1 c.c. Dilution 7—(1 in 10,000,000)—(D₇) = $\frac{1}{10000000}$ c.c. or .0000001 c.c. Poly. Tub.
 1 c.c. Dilution 8—(1 in 100,000,000)—(D₈) = $\frac{1}{100000000}$ c.c. or .00000001 c.c. Poly. Tub.
 1 c.c. Dilution 9—(1 in 1,000,000,000)—(D₉) = $\frac{1}{1000000000}$ c.c. or .000000001 c.c. Poly Tub.

PHYSICAL PROPERTIES OF POLYVALENT TUBERCULIN

No antisepsics are added to the dilutions, and with ordinary asepsis of the hands they retain their properties for two or three weeks. After the pure polyvalent tuberculin and its dilutions have been standing for some hours, the bacterial debris will settle as a fine precipitate at the bottom of the glass. If a gentle rotatory movement be given to the solution, the bacterial debris rises like a thin, curling column of white smoke into the supernatant fluid, and forms a perfect emulsion. After two or three weeks the bacterial debris in the stronger dilutions, but curiously not in the pure polyvalent tuberculin, may become agglutinated, so that on shaking a rough cloudy emulsion results, in which particles can be seen. Fresh dilutions should then be prepared. Bacterial contamination of the dilutions is easily detected, as it shows itself by small round white fluffy growths (like "clocks") appearing in the solution. If the pure tuberculin be contaminated it is usually by a mold.

STERILIZING THE SYRINGE

The injections are made with a German record syringe, glass barrel, metal plunger, platinum-iridium needle, and graduated to $\frac{1}{50}$ of a c.c., so that by stopping the plunger between a graduation it is impossible to measure to $\frac{1}{1000}$ of a c.c. Before giving an injection the syringe is washed out with pure ether. By drawing in air once or twice all the ether is rapidly got rid of, before drawing in the dilution to be injected. If the next patient is to have a dilution three bottles down the scale, the syringe should be washed out three times with ether. The advantage of ether is that it cleanses and sterilizes the syringe, and precipitates any tuberculin that may remain in the barrel so that it is washed out. After a day's injections

one can see the tuberculin that has been precipitated out of the syringe lying at the bottom of the ether bottle. When pure tuberculin has been injected, the syringe should just be washed out with sterile normal saline or with sterile distilled water, because the pure tuberculin precipitated by the ether may choke the bore of the needle.

THE SITE OF THE INJECTION

The injections are made subcutaneously on the anterior aspect of the upper arm about the middle of the biceps muscle. At this site the skin is not over sensitive, and one is generally able to avoid veins and nerves. If tuberculin be injected into a vein its action is many times more powerful than if given subcutaneously. When the injection is made in the neighborhood of, or it may be into, a cutaneous nerve, there follows neuritis with the sensation of "pins and needles" over the corresponding cutaneous area, and I have known this to spread all over one side of the body. There is no necessity to sterilize the skin, or to prepare it in any way with antiseptics. It may be the organisms of the skin are nonpathogenic, but in any case I have never seen any ill results to follow this simple method of injecting tuberculin. The only septic abscess I have ever seen after an injection of tuberculin was in the early days, when we went about this matter as for a major abdominal section. The syringe had been boiled, the solution of T.R. sterilized, two nurses had washed the arm with ether soap, and the site of the injection was covered for a few minutes with a 1 in 40 carbolic dressing. The moral is the moral of surgery—that the fewer people concerned with an operation the less likelihood of sepsis.

THE DOSAGE OF TUBERCULIN IN DIAGNOSIS

The dosage of tuberculin will vary according to whether it is given for diagnosis, prophylaxis, or for treatment. In diagnosis there is no definite measured quantity of tuberculin which reveals by tissue reaction the presence of active tuberculosis. At the same time the general principle holds true that a moderate dose of tuberculin produces no perceptible effect on the healthy organism, but is followed by a marked response in the tuberculous subject. I accept the absence of reaction to .01 Koch's Tuberculin as excluding active disease. The smaller the dose and the more definite the reaction, the greater is the positive value of a diagnostic injection. Most certainly in children, where definite reactions follow the subcutaneous injection of doses as small as 1 c.c. $D_5, \frac{1}{1000000}$ c.c. or .00001 c.c. of polyvalent tuberculin, or even 1 c.c. $D_6, \frac{1}{1000000}$ or .000001 c.c. are such reactions of very marked clinical value. In re-

gard to the Von Pirquet reaction, the younger the child the greater is the clinical value of a positive sign. It is unfortunate, however, that this reaction should often be absent in advanced disease in childhood, where the differential diagnosis between bronchopneumonia and pulmonary tuberculosis may be a matter of some difficulty.

IN PROPHYLAXIS

In prophylaxis the dose of tuberculin may be rapidly increased, beginning with 1 c.c. D₇, followed by 1 c.c. D₆, giving the injections once a week, and increasing the amount in this manner until a reaction occur, when the same principles should be applied as govern the dosage in treatment.

THE PRINCIPLES OF DOSAGE IN TREATMENT

The dose of tuberculin in treatment is gradually increased in the belief that the more tuberculin the patient can tolerate with safety the greater will be the immunizing response in his system. Experience teaches that this increase should be gradual, and for this reason any system of dosage based on arithmetical progression is utterly unscientific. To give the doses of any dilution of tuberculin in a progression of $\frac{1}{10}$ c.c., $\frac{2}{10}$ c.c., $\frac{3}{10}$ c.c., $\frac{4}{10}$ c.c., $\frac{5}{10}$ c.c., $\frac{6}{10}$ c.c., $\frac{7}{10}$ c.c., $\frac{8}{10}$ c.c., $\frac{9}{10}$ c.c., 1 c.c., is to administer the toxin in a most irregular fashion. The second dose of $\frac{2}{10}$ c.c. is 50 per cent. stronger than the one preceding, while the last dose of 1 c.c. is only 10 per cent. stronger than the one which preceded it. I do not suggest the possibility of a mechanical and automatic dosage, for the optimum dose must always depend upon the condition of the patient, and a dose of tuberculin is strong or weak, large or small, according to its relation to the degree of systemic disturbance in the patient. Granted, however, that the general condition of a patient is satisfactory, any progressive dosage should be on geometrical lines, the same multiple should apply from dose to dose, and the amount injected each time should always bear the same ratio to the previous dose. The geometrical progression I have found most serviceable is the quarter—each dose is increased approximately one quarter stronger than the one which preceded it. Thus the ten doses in each dilution are—.12 c.c., .15 c.c., .2 c.c., .25 c.c., .32 c.c., .4 c.c., .5 c.c., .62 c.c., .8 c.c., and .1 c.c.—after which one proceeds, other things being equal, to a dose of .12 c.c. of the next strongest dilution, and so on up to 1 c.c. of pure tuberculin, where this is possible. The injections are given twice a week, or once a week, according to the patient's condition and in reference to the clinical factors

which govern dosage. The initial dose is usually D_6 1 c.c. or D_7 1 c.c.

CLINICAL FACTORS WHICH GOVERN DOSAGE

The correct dose in any case at any time will always adjust the balance on the side of increased immunity by the interdependent action of the amount of tuberculin injected and the general condition of the patient. The first is under our control, while the second may be measured by clinical methods. The more advanced the disease, the more difficult is this estimation. In early cases of slight severity nature allows a wide margin for human error and to this I attribute not only the brilliant results of careful treatment, but also the startling benefit which has undoubtedly occasionally occurred in spite of treatment by haphazard methods. The condition in advanced active disease involving every lobe of the lungs is very different—the intractable pyrexia, the rapid pulse and dilated arteries, the myotatic irritability, and the disturbance of function in every system of the body, are all indications of a state of profound systemic intoxication. The patient is being poisoned by massive doses of tuberculous toxin from his own lesions, and the mechanism of immunity is almost in full abeyance. If we keep in mind that every dose is only relative, it is surely reasonable to presume that the quantity of tuberculin injected might be reduced to meet a vitality lowered far below normal, *so long as sensitiveness is still present*. A local reaction to a low dilution in an advanced case means that sensitiveness is still in existence, and that the production of immunity is still possible. I have seen a marked local reaction to follow the injection of 1 c.c. D_{10} , polyvalent tuberculin, or $\frac{1}{10000000000}$ of a cubic centimeter. In such cases I have found doses of D_8 1 c.c. and D_9 1 c.c., that is $\frac{1}{10000000000}$ c.c. to produce not only a marked local reaction, but to cause a perceptible fall of temperature by lysis extending over three days. By repeating these infinitesimal doses, *large in relation to the patient*, a general improvement has occurred and physical signs in the chest appeared to be reduced. The temperature, however, was not permanently controlled, and it is possible in such cases that the persistent toxemia which eventually terminates the case by death from asthenia is due to secondary infection. On this hypothesis one is now combining with this treatment the use of autogenous mixed vaccines. The principles of treatment are the same for all cases, and on these lines there may be some hope for the scope of tuberculin in treatment being applied to patients at present beyond its legitimate boundaries.

LOCAL REACTIONS

The local reaction to an injection of tuberculin is marked by redness, tenderness, sensation of bruising, pain, heat, and induration. Of these, induration is the last to disappear and may persist for weeks as a tough nodule in the skin. As the general immunity of the patient is raised, the intensity of these reactions is diminished. A severe local reaction alone need not influence dosage. After many injections the skin may become indurated, and the site of injection should be transferred to the other arm. Should the reaction interfere with the patient's work, the injections may be given between the shoulder blades, or in the flank. In dispensary practice these sites are not suitable as a general routine, since with upwards of fifty injections in an afternoon the necessity for patients undressing would very considerably add to the time occupied.

THE FOCAL REACTION

I distinguished three degrees of focal reaction to tuberculin. In the first there is increased hyperemia around the pulmonary lesion, with excessive autointoxication apparent in the temperature, but not accompanied by such physical signs as may be readily appreciated by clinical methods. This constitutes a mild focal reaction. The moderate focal reaction is marked in addition to the above by symptoms such as increased cough and sputum, with dull pains in the chest, described by patients as binding or constricting pains, but not associated with definite clinical signs. In a severe focal reaction there is grave exacerbation of the pulmonary lesion, the physical signs of active disease may be lit up in old foci of infection, and the morbid process may spread to new areas of the lung by a secondary aerogenous, lymphogenous, or hematogenous tuberculous bronchopneumonia.

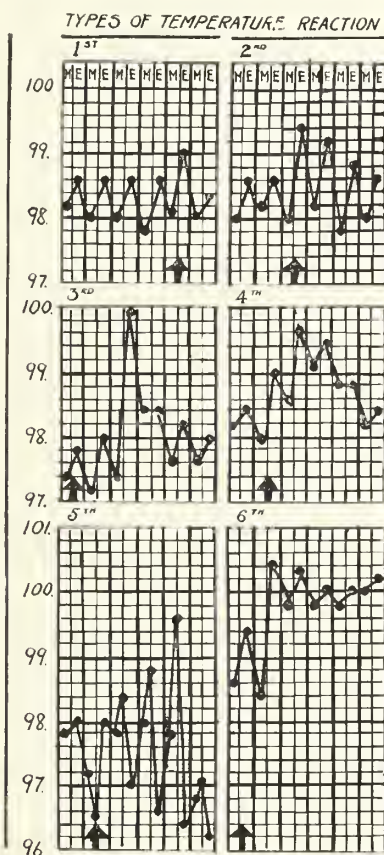
THE GENERAL REACTION TO TUBERCULIN

The general reaction to tuberculin comprises a group of symptoms, all of which are referable to the toxic properties of this substance on the neuromuscular tissues. From the clinical standpoint these symptoms are of major importance since they may be produced by a smaller quantity of tuberculin than that which will induce a focal reaction. Of these symptoms the majority are associated with disturbance of the nervous and circulating systems. On the nervous system the toxic action of tuberculin is marked by the following symptoms in their order of intensity—rise of temperature, headache, fatigue, malaise, depression, sleeplessness, restlessness, irritability, patient feels he is "going off his head," confusion, rigors,

and vomiting. In the circulatory system there is increased pulse rate, palpitation, and dyspnea. A few patients had pains in the joints, but I have not seen jaundice, scarlatiniform rashes, nor the specific tuberculin pharyngitis as is described by French writers.

THE TEMPERATURE REACTION

Of the above group symptoms the temperature reaction represents the key to the whole position. For one thing it is the first to occur, but there are other considerations of paramount importance



which have hitherto received very scant attention. No impartial student of the literature will deny that the disastrous failures of the early tuberculin era were due to ignoring temperature reactions. That is now generally admitted. Yet two factors of great import have been overlooked. The first point I submit is that the whole contention between what are termed the rival schools of tuberculin-

therapy by the reaction and the reactionless method, the great confusion of thought, the absolutely incompatible theories, and the utterly contradictory results, have arisen from a failure to appreciate and to differentiate between the types of temperature reaction to tuberculin. Secondly I suggest that in these different types of temperature we have the most accurate and scientific indication as to dosage.

THE SIX TYPES OF TEMPERATURE REACTION

Before proceeding to describe these types I have only one thing to postulate—that a rise of temperature, even of half a degree Fahrenheit above the mean, occurring within 72 hours of an injection of tuberculin is to be regarded as a reaction.

A rise of temperature reaching its maximum within 24 hours of an injection is an immediate reaction, and may occur four hours after the injection.

A rise of temperature reaching its maximum within 48 hours of the injection is a delayed reaction.

A rise of temperature reaching its maximum within 72 hours of the injection is a progressive reaction.

Now, since all pyrexia must resolve either by crisis or by lysis, it is clear that there may be six types of reaction. This is confirmed by observation.

First. An Immediate Reaction with a fall by Crisis.

This, the mildest form of reaction, is due to the tuberculin injected, which is followed by complete immunising response. From the point of dosage it is of least significance, since the dose may be later increased and no reaction occur.

Second. An Immediate Reaction with a fall by Lysis.

Here in addition to the immediate reaction to the tuberculin there are secondary oscillations due to incomplete immunizing response. At the next injection the dose should be reduced by one quarter the amount. (That is to say, from .5 c.c. to .4 c.c.)

Third. A Delayed Reaction with a fall by Crisis.

In this there is delayed absorption of the tuberculin followed by complete immunizing response. The same dose may be repeated at the next injection.

Fourth. A Delayed Reaction with a fall by Lysis.

Here there is not only delayed absorption of the tuberculin, but an incomplete immunizing response. The amount next injected

should be reduced to one half of the previous injection. (e.g. from .8 c.c. to .4 c.c.)

Fifth. A Progressive Reaction with a fall by Crisis.

In this there is not only an immediate reaction, but increased toxemia from a focal reaction, eventually overcome by immunization. This is the type of most serious significance, and if not regarded it will be followed by a violent summation temperature or by a gradual and persistent pyrexia, due to prolonged focal reaction. The dose of tuberculin must be reduced to one tenth at the next injection. (From D_3 1 c.c. to D_4 1 c.c.)

Sixth. A Progressive Reaction with a fall by Lysis.

Here there is a focal reaction not overcome by immunization. The disease is lit up in the pulmonary lesion, and may progress by secondary tuberculous bronchopneumonia of which this temperature is the type. It is the indication for the complete cessation of tuberculin treatment, as otherwise the patient will pass into a condition of chronic tuberculous cachexia.

In their order of severity these types of temperature reactions are as follows:

- a. Immediate Reaction with a fall by Crisis. Increase dose.
- b. Delayed Reaction with a fall by Crisis. Repeat dose.
- c. Immediate Reaction with a fall by Lysis. Reduce dose by $\frac{1}{4}$.
- d. Delayed Reaction with a fall by Lysis. Reduce dose by $\frac{1}{2}$.
- e. Progressive Reaction with a fall by Crisis. Reduce dose to $\frac{1}{10}$.
- f. Progressive Reaction with a fall by Lysis. Stop the injections.

Without laboring the point I submit is that sufficient evidence has been adduced to indicate the error of referring to reactions as if they only differed in degree and not in type. There are some reactions which all may disregard with impunity. There are others which in the interest of his patient no intelligent physician will dare to overlook. One should add that the relation of these types of reaction to dosage has been arrived at by clinical experiment.

RESULTS IN DISPENSARY PRACTICE

When a patient is doing well on tuberculin, there is a disappearance of symptoms, and of those physical signs which indicate active disease in the chest, with a corresponding improvement in general health. In the sputum tubercle bacilli disappear, their place being taken by large numbers of polymorphonuclear leucocytes. With regard to duration of immunity to tuberculin, Petruschky noted that

in cases where treatment closed with the largest doses of Koch's Tuberculin, sensitiveness returned in three months. I have found absolute immunity to 1 c.c. of pure polyvalent tuberculin to be maintained for six months.

ILLUSTRATIVE CASES

The following illustrative cases demonstrate the possibility of successfully treating patients with tuberculin in the practice of a tuberculosis dispensary. This treatment is available as a prophylactic measure in those exposed to great infection, in a large variety of ambulatory cases, without interfering with their occupation. Again, by this treatment patients are enabled to continue at work after returning from sanatoriums, and relapses are prevented. In very advanced disease it has a distinct but more limited application.

A. Prophylaxis

R. P., school boy, aged 13, first attended the dispensary in June, 1911, complaining of cough. Examination showed slight infiltration of the left apex, with diminished expansion above the clavicle, and weak inspiratory murmurs. There was no sputum. The Von Pirquet reaction was positive, and he gave an immediate reaction to an injection of $\frac{1}{1000000}$ c.c. polyvalent tuberculin. The systolic arterial pressure was 100 mm. Hg. His sister, aged 17, was suffering with very advanced pulmonary tuberculosis, and died shortly afterwards under the care of the dispensary. It was decided to give him tuberculin with a view to arresting the early morbid process, and raising his specific immunity to tuberculosis. The injections were continued from June, 1911, to October, 1912, when the last injection of 1 c.c. pure tuberculin was given. The cough had long since disappeared, and the patient had gained 12½ lbs. in weight during treatment. He has remained well since, and in April, 1913, gave no response to an injection of 1 c.c. pure polyvalent tuberculin.

B. In Dispensary Practice

E. G., laundry maid, aged 22, attended first in October, 1911, complaining of cough with expectoration, shortness of breath and palpitation. She had been exposed to great infection from her mother, who died of pulmonary tuberculosis, and was treated from the dispensary. There was infiltration of both apices, with weak inspiration at the right, and tense inspiration at the left apex. No tubercle bacilli were found. The Von Pirquet reaction was positive, and an injection of $\frac{1}{1000000}$ c.c. polyvalent tuberculin gave an immediate reaction to 102° F. with a fall by lysis. She attended twice weekly for eleven months, and the dose of tuberculin during this time was raised from $\frac{1}{10000000}$ c.c. to $\frac{1}{10}$ c.c. of pure tuberculin. At the end of the course, the dullness over both apices had markedly cleared up, she had no symptoms, the weight increased by 9½ lbs., and the patient has remained well since.

C. Tuberculin after Sanatorium Treatment

C. C., aged 21, male, unmarried, a blacksmith's laborer, first attended the dispensary in June, 1911, complaining of shortness of breath and cough. He had begun to cough five years before, and there was now well marked active disease affecting both lungs. As there was yet hope for his recovery the patient was referred to the Charity Organization Society with a view to obtaining sanatorium treatment, and the society arranged that he go to the Royal National Sanatorium at Bournemouth. This institution was, however, closed for two months, and as the patient was quite unfit for work, he was

advised to enter the infirmary and remain there until he could be admitted to the sanatorium. He was in the infirmary for seven weeks and gained $11\frac{1}{2}$ lbs. in weight. The disease was less acute, but still present in both lungs. He now went to the sanatorium for two months and returned with the disease arrested, and having no cough or expectoration. He had only gained half a pound in weight, but his general condition was good.

It was now desired to find employment for him either at home or in the colonies, but it was felt that before the society should expend money for this, the patient should have a four months' course of tuberculin treatment at the dispensary. For the first two months the patient lived at home, but his father getting into debt the home was broken up, and his people left London. The dispensary then arranged that the patient should occupy the Pure Air Shelter erected on the ground behind the dispensary, while the society made him a weekly allowance for food. This worked excellently. The patient continued to improve, the course of tuberculin was completed, and work has been found for him in Essex. The treatment finished in April, 1912, and the patient has remained well and at work since that date.

D. Tuberculin in Advanced Disease

J. C., a milk carrier, aged 39, first came to the dispensary in November, 1911. He had advanced disease of both upper lobes, and of the right lower, with tubercle bacilli in the sputum. He had been ill for 12 years, and had now a pulse of 100 and an afternoon temperature of 99.4° F. He was too ill for sanatorium treatment, and was admitted to Brompton Hospital. Three months later he was discharged as not likely to benefit of further treatment. He was then advised to go to the infirmary, but refused. For the last nine months he has been confined to bed, and was treated from the dispensary. In addition to general treatment, he had constant inhalations of Formalin, and the essential oils, creosote internally, guaiacum externally and internally. In spite of this he went down hill. A cavity developed in the right upper lobe, the evening temperature was always about 100° F., pulse rate 120, appetite poor, sleep disturbed, and very great weakness developed. In May, 1913, the patient's ankles became painful, swollen, and edematous. This condition was relieved by 1 minim doses of tincture of digitalis three times a day. The patient gave a marked local reaction to 10000000000 c.c. polyvalent tuberculin. This suggested that sensitiveness was still present and the production of immunity possible. Tuberculin in small doses D_9 , 1 c.c. and 8 g/c.c. was given twice a week. As this had no effect on the temperature, which ran from 98° F. to 100° F., I considered secondary infection to be present. Through the kindness of a lady visitor interested in the dispensary patients an autogenous vaccine of the secondary organisms present was prepared for me by the London Clinical Research Association. The initial dose was 10 millions, and the injections were given once a week. After this treatment commenced the patient's general condition greatly improved, his appetite returned, and he slept well. The pulse fell to 100, and the signs in the chest markedly diminished. The temperature, however, persisted, although the autogenous vaccine caused distinct reactions. Before leaving on vacation I suggested to my colleague that the vaccine should be pressed. In August a dose of 75 millions was given, which caused a severe temperature response, and three days later the patient suddenly died of acute hemorrhage. The improvement during treatment was noted by all concerned, and it is only right to state that the case appeared hopeless from the first.

STATISTICS OF RESULTS

To state results fairly and in such a manner as to render them comparable with those of others, it seems essential that stress be not laid on signs and symptoms capable of different interpretation, but that a clinical classification such as Philip's be adopted, and a division of patients be made into those whose sputum contained tubercle bacilli, and those in whose expectoration the tubercle bacillus

was not found. In the statement of results the word "cure" is avoided, but the words "disease arrested" implies that the patient presents neither symptoms nor any active signs of disease. The other terms require no explanation.

TUBERCULIN TREATMENT (WITH POLYVALENT TUBERCULIN)

Number treated, 131

(This does not include those patients treated with prophylactic injections)

TB		TB	
I. L s	54	I. L s	2
I. L S	..	I. L S	..
II. L s	31	II. L s	6
II. L S	..	II. L S	..
III. L s	10	III. L s	14
III. L S	..	III. L S	14

RESULTS

TB—Stage I. L₁s

	Duration of Treatment in Months																	Total
	1	2	3	4	5	6	7	8	9	10	11	12	15	16	17	18	21	
Dead																		2
Worse			1					1										2
In statu quo.....	1	2	5		1							1						10
Improved		3	3	5	5	3	2	6	2	3	1				2		1	36
Disease arrested		1						1						2	1		1	6

TB—Stage II. L₂s

	Duration of Treatment in Months																	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	16	22			
Dead																		
Worse																		
In statu quo.....				1													1	
Improved	1	3	1	1		2	2	2	1	3	1	5	1		1		24	
Disease arrested					1			1		1	1	1		1			6	

TB—Stage III. L₃s

	Duration of Treatment in Months								Total
	1	2	3	4	8	9	10	14	
Dead									
Worse	1								1
In statu quo.....									
Improved		1	1	1	1				4
Disease arrested				1		1	1	2	5

THE RÔLE OF THE PREPUCE IN DISEASE

BY GUSTAV F. BOEHM, JR., M.D.

*Neurologist and Surgeon, West Side German Dispensary and Hospital; Clinical Assistant, Neurological Institute;
Clinical Assistant, Department of Neurology,
Vanderbilt Clinic, etc.
New York*

An old topic, but one which is of great importance, is the question of the relationship to bodily health of that much operated upon portion of the male anatomy, the prepuce. To it have been attributed a legion of nervous disorders; it is accused of being an accomplice to the Neisserian diplococcus, the Ducrey organism, and that doughty warrior, the treponema pallida; gastroenteric conditions are laid at its door; in fact, if the literature be carefully gone over, one marvels at the malignant powers of this little fold of skin and mucous membrane. The surgeon and the obstetrician, the pediatricist and the neurologist, and, last but not least, the general practitioner seize upon it as the cause of a myriad of bodily ills. Theology, too, has for centuries attacked it, both for ceremonial as well as for hygienic reasons.

It is the purpose of this paper to attempt to reach some fair conclusions as to what part this mucocutaneous fold really plays in the pathogenesis of disease, and to call for more conservative methods of treatment than circumcision.

In preputial conditions the sole considerations seem to be (1) too long a prepuce, (2) too narrow a preputial orifice, and (3) other malformations. These are the usual anomalies for which operation is advised. The hygienist then steps in and claims that for cleanliness (?) sake, and to prevent (?) venereal disease, it must be removed. The neurologist demands its removal, because it causes (?) chorea, epilepsy, mental conditions, etc., in which cry he is ably assisted by the pediatricist.

The subject will be approached in the following manner:

1. The normal anatomy and histology of the prepuce and glans.
2. The physiology of the prepuce.
3. Pathological preputial conditions classified.
4. The bearing of the prepuce on local and systemic conditions.
5. The rational treatment of the prepuce.

The prepuce is a more or less cylindrical fold of mucocutaneous membrane which surrounds the glans penis. Its outer surface is composed of epidermis similar to the outer covering of the penis.

Its inner surface is still composed of epithelium, but of a type less keratinized, and is moist at all times, because of the secretion of its glands and of the presence of a certain amount of smegma. Its deeper structure is composed of connective tissue and some involuntary muscle fibers. It is markedly elastic and extensile, and readily adopts itself to the various conditions of the copulative organ.

The blood supply in the young is scanty, but in later life is abundant. The nerve supply is free, and here comes the first difference of the prepuce from skin elsewhere. Throughout its whole surface are distributed numerous sensory end organs, so highly specialized that they have been aptly called "the genital corpuscles" by Krause. Besides these there are a considerable number of Paccinian corpuscles to be found.

Nor is this the only point where these special end organs are to be found. They are present over the entire surface of the glans penis.

2. The Physiology of the prepuce and glans penis.

Nature, as a rule, makes few errors—and for a certainty she did not err in providing man with a prepuce. The ultimate object of all animal existence is, after all, procreation, the propagation of its own species. True, we may do other things; but, after all, the primal law of man is to "be fruitful," to which civilization has added the duty of educating his offspring to better standards than his own. And in procreation the prepuce plays an executive part.

We have seen that the prepuce forms a covering for the glans; we have seen that its inner surface is moist, as is the glans; that its inner surface is studded with special sensory end organs, as is the glans. If we analyze these factors we will find, 1, that the prepuce is a protector of the glans, and, 2, that it heightens the sensibilities during the act of coition, and thus assists in the sexual act.

During the flaccid state of the organ the glans is completely covered by the prepuce. It protects the delicate epidermis of the glans from injury; it prevents continual irritation of the genital corpuscles.

In the erectile state of the penis the glans is entirely exposed, the foreskin vanishes, but in such a way that an area of mucous membrane, equal in size to the depth of the prepuce, with its numerous specialized nerve endings, is added directly to the surface of the glans. The physiological result is heightened sexual stimulation. Remove this surface, and just so much specialized tissue is removed from taking part in the act.

Physiologically, then, the prepuce has definite functions—protective and sexual—and these should not be forgotten when one deals with it as a factor in disease.

3. Pathological preputial conditions.

These can be classified as follows:

- (a) Excessive length of prepuce.
- (b) Short, or absent, prepuce.
- (c) Phimosis.
- (d) Preputial adhesions.
- (e) New growths.
- (f) Venereal disease.
 - (1) Verrucae (gonorrheal).
 - (2) Chancroids.
 - (3) Chancre.

It is not the purpose of this paper to enter into the discussion of venereal or dermatological conditions. They and new growths will only be spoken of here as part of the general topic.

- 4. The bearing of the prepuce on local and systemic conditions.
 - (a) Local conditions.

A spasm of public interest in the prepuce has during the last five or ten years had its sway. Because the medical profession has laid so much stress upon its importance, parents have come to think that its removal is essential to the welfare of the child—and in many instances the profession has not been loath to cry “operation” on the slightest pretext.

And not the least of these has been “local hygiene.” The story is almost invariably the same. Remove the prepuce, and smegma, etc., will not gather, disease is prevented. Absolute absurdity! In the first place, the ordinary human being should take an occasional bath—and a parent can teach a child that the foreskin is to be retracted during the bath and excess smegma removed. The average mother teaches her daughter proper vaginal hygiene to prevent vaginitis, etc. The father can do a similar thing for his son by instructing him in his personal hygiene.

Again, the removal of the prepuce prevents, or helps prevent, venereal disease. This is a constant tale on the part of young libertines who enter our offices. We did not know that the prepuce normally harbored the gonococcus after infected intercourse. Of course, it is present here, as part of the surface exposed; but as most gonorrheas in the male seem to be in the urethra, it would appear that they find their way there during the act of coition.

Luetic infection must have an atrium, a point of entrance; and surely an unbroken mucous membrane of a prepuce is no better point for entrance than an unbroken mucous membrane of a glans unprotected by its covering.

This, then, disposes of the hygienic myth which advocates circumcision for local prophylaxis.

The remaining local processes will be considered under the general treatment.

Systemic conditions:

The pediatricist, the neurologist and the general practitioner have pointed out the value of circumcision in certain nervous and mental conditions, but have too frequently argued "ergo hoc, propter hoc." The gamut of neurological diseases said to be due to the prepuce runs from chorea to insanity, from epilepsy to homicidal mania.

The sole effect the preputial adhesions or phimosis can have is a reflex one—and to be of great effect the nervous system of the individual affected must be below par. True, choreiform movements, epileptiform convulsions, masturbation and other symptoms of disease may be aggravated by an adherent prepuce or a phimosis, but only if the patient be of a psychopathic constitution. One frequently sees cases in which, with marked malformation, the patient is not aware of his abnormalities, and never has a disturbance at all simulating nervous disease.

In children it is not unusual to see masturbatory movements. If the prepuce be at all redundant, or if there be a tendency to phimosis present, they are at once declared to be due to these conditions. Atwood and Clark have described movements, rocking, finger sucking, leg friction, etc., and have called attention to their significance as an evidence of nervous disease, or psychopathic constitution. Must, therefore, similar movements, convulsions, etc., be attributed to preputial abnormalities? It would seem wisest to investigate carefully the reflex causes for these seizures, it is true; but the practitioner should not forget that the true underlying cause, the insufficient or abnormal psychic makeup, must also be investigated.

Nocturnal enuresis is often attributed to abnormalities of the prepuce. Modern investigation into the field of the psychopathic point out well that this condition is frequently due to hysteria, to epilepsy, etc., and not to the too frequently assigned cause. After investigating all other causes than preputial conditions for this annoying symptom, one will find that it can but rarely be attributed thereto.

One can investigate other instances of the detrimental effect of these preputial conditions, and one is astonished to find, on analysis, how small a part it really plays in disease processes and how complacently they have been attributed to it.

The Rational Treatment of the Prepuce.

Three words suffice for the treatment of the normal prepuce—"Leave it alone." It has its purpose to fulfil; it causes no trouble; here "judicious neglect" is to be the treatment. Cleanliness, of

course, should be taught. If illicit intercourse is part of the routine of our patient's life, he should be cautioned or instructed in prophylaxis against venereal disease.

Preputial adhesions should be broken up according to approved methods. Circumcision is unnecessary. Again the advice, so far as the prepuce is concerned, is "Leave it alone."

For the remaining abnormalities the operator should employ conservative methods. The glans should be liberated from the prepuce. Remove only as much prepuce as is essential to secure complete retractibility from the glans, and no more.

If these methods be followed out the physiologic mean will be the result, and, as a fact, the reflex irritation of an unprotected glans will be avoided.

Conclusions.

1. The prepuce has a definite, physiologic purpose.
 2. It is not the cause of all the ills to which its abnormalities are attributed.
 3. It should not be removed for so called prophylactic or hygienic reasons.
 4. When necessary to operate upon it, do so conservatively.
-

OBSTACLES TO THE PRACTICE OF EUGENICS

BY GEORGE B. LAKE, M.D.

Jolo, Moro, P. I.

Much is being written in these days about the overwhelming importance of furnishing one's children with a sound and creditable set of ancestors; but the imperative nature of this duty can be appreciated only when one has made some study of Mendel's laws, with all the hope they hold out in case of well considered unions, and all the legacy of despair and disgrace which may be the portion of those who mate unwisely.

Granted that two young people of opposite sex are sufficiently interested in each other to consider a conjugal union, and that both have apparently sound and normal bodies, but have read and studied sufficiently along the lines of heredity and eugenics to sincerely wish to probe their ancestry for the detection of possible hereditary taints—what recourse have they?

The young man goes to his father and says: "Father, I wish to find out all I can about my family. Please tell me all you know."

How satisfactory will the result be, even when the purpose of the inquiry is made known? How many fathers would be willing to reveal to their sons the fact of their having had such diseases as gonorrhea or syphilis, or that they possessed perverted sexual appetites?

Even supposing there is nothing in the history of either parent which could cause shame if revealed, how many men would be willing to hazard an opinion as to where the line should be drawn between the "eccentricity" of a beloved wife or parent and true mental alienation?

How many men who are today old enough to be the fathers of marriageable sons can tell you, with perfect accuracy, the present physical and mental condition or the cause of death of their parents, if deceased—to say nothing of their grandparents. Life insurance examination papers are thickly strewn with such causes of death as "rheumatism," "childbirth," "heart disease," "old age," etc.

The prospective bride goes to her mother with similar questions; and here arises a more complicated set of obstacles to the discovery of the truth. The mother may consider that any discussion of the sort is "indelicate," and refuse to pursue the matter. She may feel that the match will be a "good" one from a fiduciary standpoint, and so refuse, tacitly, to give any information which might interfere with its consummation. She will be very likely to hide or gloss over the shortcomings of a dead father, whom the child cannot remember, and she will be even less likely than the father to possess accurate information relative to the more remote ancestors.

When the prospective bridal pair have possessed themselves of the information which their parents are able and willing to impart they can do no more. No records are available for them to ascertain their mental and physical status, though the *financial* situation of practically any person may today be ascertained almost to a dollar.

What is the answer? Here is one:

Let the various State Boards of Health (the matter can be taken over by the "National Department of Health" when it comes, as come it surely will) announce that they are prepared to become the repositories of any properly authenticated family histories which may be submitted to them for record. Then let every person who is interested in the good work prepare and verify such a history, going as far back as possible, and file it. The discussion aroused will set men and maids to thinking, and by the time our children or grandchildren are ready to marry the prospective bride or groom who cannot refer to such a record will be under suspicion; in the

next generation he will be under a cloud; and by the beginning of the twenty-first century the inability to produce an authenticated genealogy at least three generations back will be sufficient proof of shameful taints or criminal carelessness to warrant any civil or religious official in refusing to marry such a person to any one.

Until some system of public registration of physical strains and tendencies has been in operation for a generation or two, and a large mass of information along these lines is available, anything like a general application of the supremely beneficent laws of eugenics will be impossible. This, however, should discourage no one in applying all the knowledge of this sort which is procurable in any particular case; in fact, it appears to me that any one who *fails* to apply all the information available does incalculable injustice to his posterity.

POPULATION OF THE EARTH

At its last meeting in Birmingham, the British Association for the advancement of Science discussed seriously and at great length the problems of overpopulation and of food supply. Tables of figures, based on recent researches and censuses, showed that people are born in such numbers as to worry the scientists. The question was raised as to where the necessary sustenance for the increased population will be found, and the most terrible calamity in consequence of the approaching shortage of food, coal and other supplies were predicted. At almost the same time that these English scientists worried about the overpopulation of the globe, another set of scientific men, the American Public Health Association, met at Colorado Springs and pondered over the decrease in the birth rate and the increase of insanity. They figured out, also on the strength of long tables of statistics based on recent censuses all over the world, that the time was fast approaching when nobody would be born any more and the few survivors would be insane. The reader of the reports of these two scientific bodies may take his choice. In the meantime we shall go on marrying and giving in marriage, and producing children, though as we go higher in the scale of civilization there will be a gradual diminution in the birth rate.

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JOHN W. WAINWRIGHT, M.D., EDITOR

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EDITORIALS

MOSAIC CIRCUMCISION

THE AMERICAN PRACTITIONER has been giving much space to the question of circumcision. Probably the majority of the profession approves of it as a sanitary measure. What is the matter, then? Why, simply look at the finger nails of the average mohel and both finger nails and teeth of the old fashioned mohel and the wonder will become purely a question of how do any children escape infection. My investigation in past years leads me to think that the Jewish race must be very resistant indeed to certain mixed cultures. Perhaps the miseries of Ghetto life may have brought an unlooked for but hard earned compensation.

Many medical friends, both Hebrew and Gentile, seem to be impressed with the idea that circumcision is a Mosaic rite. This is not true, for Moses opposed it even at the risk of his life, and would not circumcise any one. It was derived from Abraham, and Moses omitted and neglected its performance.

I have had this statement questioned by rabbi, priest and doctor, but have always made good upon it by reference to the records as they stand in the Hebrew and Greek scriptures.

This is what the records say: Christ states—Ye have not circumcision from Moses, but from the Fathers (Abraham). Moses refused to circumcise his own son, did not circumcise any of the hundreds of thousands of children born during the forty years in

the desert, and Joshua circumcised them all with stone knives. Stupid persons invariably jump to the conclusion that the rite was omitted because the people were marching all the time. The facts are: It took forty years to cross a four hundred mile desert; over a half million births (and funerals) occurred, and if the cloud abode the people stayed still "a day, a month, a year or a longer time."

That no mention is made of anything like sepsis when many hundred thousand adults and children were circumcised with stone knives rather confirms my experience that Jewish children are quite proof against the usual septic sequellae which dirty finger nails and unboiled instruments would lead one to anticipate.

As to the rite, that great lawgiver and sanitarian, Moses, would have none of it. He was versed in all the wisdom of the Egyptians, quite a different thing from the practice of any Arabian rite. He must have marveled as we do—"How can a mohl (whose hands, we know, must show mixed and virulent cultures) tear up the preputial mucous membrane and the child escape infection." Substitute the word plague for infection and the idea will be clear, since there is small difference between a plague of sores and septicemia. That the child commonly does escape proves that the race is protected in some way from rock knives and dirty finger nails. Bacteriology has its supernatural, and this immunity is one of its miracles.

DOUGLAS H. STEWART, M.D.

MORPHINE AND ATROPINE

These two agents are used together in varying proportions, and much depends on an accurate adjustment of the quantities to their respective physiologic action.

Both act upon the brain—atropine producing delirium, hallucinations and disturbed sleep; morphine generally brings about sleep. Both relieve pain, morphine much more than atropine. Both produce disorders of motility (gait)—staggering, difficulty of coordinating muscular movements; vertigo, confusion of mind, and headache. When given together these effects are curiously modified. Morphine corrects the hallucinations and phantoms of atropine. Atropine in small doses increases the hypnotic power of morphine.

If the atropine, however, is in excess of a balance of physiologic effect, it overlaps the sudorific action of the morphine and causes wakefulness and illusions.

The pain relieving power of morphine is increased by atropine.

Disorders of motility and vertigo are not diminished when the two agents are used together, but the after headache and confusion of mind are much less.

When toxic doses of morphine are given it is overcome by the atropine, and *vice versa*. Morphine and atropine antagonize each other's action on muscular fiber, morphine preventing the contraction of the arterioles and arterial tension produced by atropine. Morphine depresses the action of the heart. Atropine is a powerful cardiac stimulant. Morphine reduces the external temperature; atropine elevates the body heat. There is no antagonism as regards the respiratory functions or their action on the digestive apparatus; morphine produces constipation, atropine relaxes the bowels. Morphine suspends, while atropine promotes functional activity of the kidneys.

NOSEBLEED IN CHILDHOOD

Nosebleed in a child or adolescent is a habit which often persists for a decade or more. If the loss of blood is insignificant, nothing need happen. But if the nosebleed is of frequent occurrence, so that the loss of blood is considerable, the resistance of the subject to disease is notably decreased. Not a few cases of tuberculosis may be traced to this source. Attention is called to the fact that nosebleed subjects eat most heartily in the evening, so that during the night they tend to sleep and digest poorly. They awake with coated tongue and repugnance to food of any kind. The author advises a toilet of the nose, a pushing of good food early in the day, with a light meal at night. The suspicion of a syphilitic taint often justifies the use of iodides, which involves abstinence from fruit and sweets.

CORNERING HUMAN LIFE

Humanity is dishonored by the state of affairs which is disclosed, on very high authority, by *The Tribune's* Berlin correspondent.

Four of the most eminent German scientists declare that the high cost of radium and mesothorium is due to the sordid commercialism of their producers. In a word, those chemicals are being cornered by monopolists. This, if true, is a monstrous offense. It is highly desirable that the marvelous mineral should be placed as freely as possible in the hands of all competent investigators and operators. At the present price it is beyond the reach of all but a few. To reduce its cost even one half would be to multiply its use many times.

For men, needlessly and from greed, to keep the price of so valuable a therapeutic agent at an almost prohibitive figure is equivalent to cornering human life itself. To correct such an abuse the intervention of the powers, which some scientists are suggesting, would not be too extreme a recourse.

EPILEPSY AND ALCOHOLISM

The view held by the majority of authorities that parental alcoholism at the time of conception is an important factor in the causation of epilepsy in the children is supported by Mathew Woods, Philadelphia (*Journal A. M. A.*, December 27), who gives brief histories of several cases of children begotten during intoxication by a parent who had been and was afterward an abstainer. He argues from these facts, and holds that he is supported by recent physiologic research on the temporary effect of alcohol, that we need not assume it as necessary for the parent to have been a habitual alcohol user to imperil the nervous normality of their offspring. In the cases he enumerates, he says there was no history of either epilepsy or other neuroses on either side of the family. Three other cases are referred to, and the facts related were obtained only by extra questioning. Similar investigation may, Wood thinks, throw light on many cases of epilepsy without apparent adequate heredity and otherwise unaccounted for.

FEWER MEDICAL SCHOOLS

Decrease in student body also shown, though more women enter. A gradual decrease in the number of medical schools in the United

States is indicated in a report compiled by the Federal Bureau of Education. There were fourteen fewer schools, 1200 fewer students, and a decrease of 500 in the number of graduates in 1913 as compared with 1912. But the number of women studying medicine showed an increase last year. Of the 18,451 students in 1912, 712 were women, while in 1913 there were 835 women among 17,238 students. Only seventy women graduated this year as compared with 142 in 1912.

Reduction in the number of medical schools is part of a general movement inaugurated some years ago for the improvement of institutions. Entrance requirements and courses of study have been materially raised.

STERILIZATION UNCONSTITUTIONAL

The statute recently enacted in New Jersey, authorizing the sterilization of the feeble-minded, epileptics, criminals, and other defectives, has been declared unconstitutional by the Supreme Court of the State. The act is held to be contrary to the fourteenth amendment to the Constitution of the United States guaranteeing equal protection of the laws to all and to exceed the police powers of the State. The court points out the danger of permitting legislatures to prescribe those upon whom the operation should be performed, since, if sanctioned, the penalty might be extended to include those regarded as undesirable by a majority of a prevailing legislature.

THE LAST WORD OF WISDOM

"Success is for the loud talkers, the self-convinced dogmatists. Everything is admitted on condition that it be noisily proclaimed. Let us throw off this sham and recognize that, in reality, we know nothing about anything if things were probed to the bottom. Scientifically, Nature is a riddle without a definite solution to satisfy man's curiosity. Hypothesis follows hypothesis; the theoretical rubbish heap accumulates, and truth ever eludes us. To know how not to know might well be the last word of wisdom."

DIGEST OF CURRENT MEDICAL LITERATURE

Comments on the Broader Issues of the Psychoanalytic Movement, Association of American Physicians, Washington, May 6-8, 1913.—Dr. James J. Putnam, of Boston, stated that Psychoanalysis arose in the beginning as a means of treatment of the psychoneuroses, which are so numerous, so disabling, and so far beyond the reach of any treatment capable of being utilized and transmitted, as a system, which any one, with sufficient pains, can learn to use. Its claims to recognition from this standpoint are now so well established that it will soon be considered illegitimate for physicians to fail to give any seriously ill patient of this class the benefit of this method, provided it is possible to have it thoroughly and completely employed. These conditions are indispensable, and the profession should coöperate with the most conscientious representatives of the movement in seeing that they are met. Those physicians who accept the theoretical importance of the principle that it is necessary adequately to know one's self in order to regenerate one's self, that one should substitute the real causes of one's fears for the apparent causes, etc., and yet who do not approve of the assumed present uses made of this principle, should feel under a moral obligation to show how it can be applied with the same thoroughness as by psychoanalysis of the present day, and yet with an avoidance of the assumed evils.

In the meantime, the psychological principles on which this method rests are clear, and should be understood by every one. Some of the more important are the following:

No part of a person's life ever becomes, strictly speaking, dead, as regards its relations to the rest; the vital impulses manifesting themselves in early childhood as instincts and cravings remain operative, as active forces, in some sense, and for good or evil, throughout life. Furthermore, the human being, on account of his far greater ability to exercise choice, is not safeguarded to the extent that the lower animals are. He is forced to make, even in earliest childhood, decisions which may lead to good consequences or to hampering or pernicious consequences; and although these decisions are, at first, more or less unwittingly made, each individual must assume later the responsibility for them, and should study and, if necessary, counteract the tendencies which flow from them. If symptoms or defects of character occur later, the treatment of them

cannot be relegated to the internist, or left to the sole influence of suggestion or the stimulation of the conscience and the will. Neither can the neglect or forgetting of these living forces (if they chance to tend in an unfavorable direction) be confidently counted on as an adequate means for dealing with them. Every act or thought becomes and remains an active power, which nature is likely to utilize for harm if it is not more or less consciously utilized for good. (The evolution of the unconscious life, with its organized, and often mischievous, complexes of infantile type, suggests the Miltonic organization of Hell under Satan, after his repression from Heaven.) In other words, the power and temptation to make choices dominated mainly by a craving for pleasures of infantile type, or mixed, pain pleasure choices, must be counteracted by the power to see clearly and rationally the results of these tendencies, of which one can be made cognizant only through an adequate psychoanalytic treatment.

The Divine Comedy of Dante, considered as an allegory of universal application, typifies in many respects a psychoanalytic treatment; and just as in Dante's case the journey into his inner life ended in a high degree of moral regeneration, so should, theoretically, a complete psychoanalysis terminate. Such completeness may be rarely attained nor often definitely sought, but the actual tendency of every psychoanalytic treatment is toward genuineness, sincerity and moral courage, both for patient and physician; more or less important moral issues are not brought up and faced, and thus regained for the main ends of life. (Myth of the infant Hercules, etc.)

The study of the real psychology of childhood, as a period thrilling with issues that are vital for the whole rest of life, and in which the unconscious, with its forceful, elemental processes, that live on untouched by time, has its principal beginning, has long been and will long be, the main objective point of psychoanalytic study; but the difficult subject of prophylaxis, the final working out of which must wait, for the most part, as a problem for a future generation of investigators, is being practically studied from many points of view.

The remainder of the paper was occupied with a consideration of the reasons for inquiring into the details of life with great thoroughness; of the reason why so much stress is laid by patients upon the sexual influences in their lives, as a vortex into which primarily non-sexual psychological influences are inevitably drawn; upon the possibility of ennobling the celibate life through the reason and the imagination, and upon kindred points. The importance of distinguishing between the significance of acts as such and acts as stand-

ing for tendencies, and between the infantile and the disinterested types of emotion, were briefly emphasized.

Lime in Therapeutics.—Von den Velden, in *Therapeutische Monatshefte*, October Nov. 10, 1913, limits his discussion of this subject here to the action of calcium salts on the endothelium of the vessels and on the coagulation of the blood. He gave patients 1 gm. tablets of calcium lactate up to a total dosage of 4 or 6 gm. a day. To a few others he gave calcium chlorid 0.5 gm. three times a day. In a few cases he gave the lime by intravenous injections of a 5 per cent. solution of calcium chlorid. His experience has demonstrated that the calcium enhances the coagulating power of the blood and also renders the morbidly permeable vessel walls less permeable. The latter effect is strikingly evident in hemorrhagic affections, such as scorbutus; the calcium renders the vessel walls less porous. This hemostatic effect, therefore, can be anticipated only in case of bleeding by diapedesis. It is unfortunate that the absorption of the calcium salts depends on a variety of factors, especially on good gastric secretion and on the absence of fermentation acids in the intestine. He detected the abnormal permeability of the vessels responsible for the rebellious scorbutic hemorrhages in one case by applying a cupping glass for five minutes. The vacuum glass drew blood just the same after two weeks of the ordinary measures. Then he gave the man 3 gm. a day of calcium lactate for five days, after which the cupping glass no longer drew blood, and complete recovery followed in three weeks of the same treatment. He also found calcium lactate useful in two cases of iodine poisoning from a course of potassium iodid. A further useful application of the calcium lactate is in curing the cutaneous manifestations of anaphylaxis. In pleurisy with effusion the fact that the calcium renders the vessel walls less pervious has an unfavorable side, as this checks absorption. The calcium is indicated, therefore, only when the effusion constantly recurs after puncture. When the walls of the pleura are severely modified by chronic inflammation the calcium will naturally have no effect. He found that animals developed cachexia when given calcium salts over a long period. In fifteen cases of hemorrhagic nephritis the results of the calcium medication were conflicting. No pronounced favorable results were obtained in any case and the condition was aggravated in some.

Nasal Catarrh.—The treatment Wilson (*The Practitioner*, October, 1913) has found most useful in cutting short an attack of acute

coryza is the following: 1. A single pill of morphin gr. 1/6, made up with a little capsicum and ol. menth. pip. A small dose of nitroglycerin also is advantageous. 2. In two hours 10 grains of aspirin. 3. A hot bath. The following morning a purgative dose of magnesium sulphate is given to clear away the intestinal contents held back by the morphin. Neither a nasal douche nor a spray should be employed, but an irritant antiseptic ointment, containing menthol and salicylic acid, will best fulfil the purpose. A small portion of such an ointment is inserted well up into each nostril, where, if sniffed back, it gives rise to considerable smarting and secretion; it should be applied frequently despite the pain. It will be succeeded by a period of relief, and then the nose can be sprayed repeatedly with a sedative preparation. Despite the pain caused by the menthol-salicylic preparation, no cocain should be employed at all, as it paralyzes the ciliated epithelium and opens the way for fresh infection.

The Heart in Syphilis.—Harlow Brooks, in the *American Journal of the Medical Sciences*, October, 1913, arrives at the following conclusions in heart complications in syphilis:

1. Serious involvement of the heart is frequent in syphilis. Epicardium, endocardium, or myocardium, or all together, may be so diseased.
2. Cardiac involvement may develop early in the infection, though its symptoms may not be apparent until late.
3. The signs and symptoms are those of cardiac disorder, and little or nothing, except the history, general aspects and the Wassermann reaction, may indicate the true etiology.
4. Treatment should be first along indicated circulatory lines, secondary as to time, but, most productive and important of all, it must be specific.
5. Good results, cures in many instances, will follow appropriate antisypilitic treatment.
6. The special method of treatment should be individual, but both mercury and salvarsan are efficacious in the condition; usually they are preferably combined; in some instances the former, in others the latter, acts best. Iodine is an efficient adjuvant in at least some instances.
7. Treatment should be continued until a permanent negative Wassermann is attained. Subsequent to this the management of the case should be along circulatory, not luetic, lines.

Physiologic Albuminuria.—This entire number of the *Wochenschrift* is devoted to articles written from the standpoint of medical army officers, in tribute to the sixtieth birthday of the surgeon general. Hecker (*Berliner Klin. Wochenschrift*, October 6, 1913) states that he found albumin in the urine in 4 per cent. of 8,848 young men examined for the military service in 1909-1911. In twentyeight of the recruits the albumin had disappeared on repetition of the test, and all in his group of "physiologic" albuminuria have kept in persisting good health since. He discusses other army experiences in this line and life insurance statistics. They all tend to demonstrate the harmlessness of a transient or habitual albuminuria in persons otherwise apparently in normal health and without a history of kidney or constitutional trouble. By accepting recruits with "physiologic" albuminuria, he adds, the German army gets numbers of sound soldiers who otherwise would have to be rejected. With the present peace footing of 661,478 men, the question involves 26,500 men, accepting 4 per cent. as the average, with albuminuria among the young men enrolled for military service. The military training generally has a favorable action on tendency to albuminuria in these cases.

Alcohol as an Application to Wounds.—While the iodine vogue has increased to such an extent in this country that it may be considered as a standard, we see increasing evidences from our foreign exchanges that alcohol is equally useful as a wound application. For instance, Blanchard, in the *Bulletin Médical*, 1913 (*Cf. Providence Médicale*, August 9, 1913, p. 356), tells of a case in which he amputated below the knee the leg of a vigorous man of thirty on account of putrid gangrene of the foot. The following evening the condition of the wound and of the patient was bad. When the dressing was removed two thirds of the flaps were found gangrenous. The doctor then applied a dressing of alcohol, four parts alcohol and one of boiling water. The result was remarkable. In forty-eight hours the temperature fell, the pain ceased and the patient slept. On the third day the dressing was repeated. The gangrenous skin had become hard as leather. To make a long story short, the patient made a rapid recovery, the alcoholic dressings having exercised an effect truly marvelous; within fortyeight hours it arrested the septicemia and relieved the pain. The doctor has used this method of treatment in other gangrenous wounds, with equally satisfactory results. He says that alcohol thus applied makes it possible to diminish the number of dressings when it is impossible to

apply them frequently; it may remain in place six or seven days, while moist or oily dressings would be soiled in three or four. They diminish suppuration, the granulations are more vascular and repair more rapid.

Administration of Quinine in Malaria.—J. P. Bates (*Journal of Tropical Medicine and Hygiene*) designates thirty grains a day as the dose of quinine sufficient in the majority of malarial cases, although in the few cases that tend toward rapid spontaneous recovery three to five grains a day will appear to give satisfactory results. For the therapeutic test the amount is sometimes increased to forty five grains for one or two days. In cases that pass into the grave and pernicious types, Bates gives from sixty to ninety and even 120 grains a day; these massive amounts are never continued, however, longer than twenty four hours. In the cases that do not succumb to the infection, the dose is then at once reduced to forty five grains, and in a day or two more to thirty grains. In the average case, the appearance of full grown, presegmenting and segmenting parasites in the peripheral blood, unusual viscosity of the blood when the ear lobe or finger is punctured, and mental aberrations indicate an increase in the dose to forty five or sixty grains for a day or two. Absence of these signs, even with large numbers of parasites, indicates a probable average course of the disease, and removes the necessity for doses above thirty grains. In cases where parasites disappear from the circulation, but the gravity of the symptoms increases, quinine is no longer of use and should be rapidly reduced. Bates administers the thirty grain daily doses in two fifteen grain fractions, both in the afternoon; the forty five and sixty grain doses in three and four fifteen grain fractions, respectively, and larger amounts in ten grain doses every two or three hours. He deems oral administration of quinine more efficacious than hypodermic injection. Where vomiting follows ingestion of the drug, readministration of the latter in ten grain doses after each rejection, with small injections of morphine and hot sinapisms, will give satisfactory results. Bates has seen no ill effects from large doses of quinine save temporary amblyopia in a single patient who was taking thirty grains a day. Some patients continued this daily amount by mistake for two or three months, without harm. For the prevention of relapse, Bates advises the taking of thirty grains of quinine daily on three successive days in each week for six or preferably eight weeks.

Strychnine in Heart Failure.—An inquiry was undertaken by Parkinson and Rowlands (*Journal American Medical Association*) to obtain evidence as to its immediate effect when given subcutaneously in cases of severe heart failure. The blood pressure, rate and regularity of pulse, rate of respiration and general condition were recorded for an hour after each injection. The action of repeated doses was not investigated. Fifty patients were examined on admission and approved if they presented symptoms and signs of severe heart failure with or without valvular disease; those with heart failure secondary to pulmonary or renal disease were excluded, as were those with pyrexia. Most of the patients showed orthopnea and edema of the legs; all had shortness of breath. Strychnin sulphate in a dose of one-fifteenth of a grain ($1/15$ grain = 0.0044 gm.) was given subcutaneously in each experiment. Before any observations were made the patient was allowed to remain quietly at rest in bed for three to eight hours, and during this period no drugs were administered. After the injection, records were made at the end of each period of five minutes during one hour. In cases with regular rhythm on no occasion was any increase in blood pressure produced. The average rate of the pulse before injection was 107.6, and after injection 104.0, a slight decrease of 3.3 beats per minute. The authors ascribe this fall to the same factors as mentioned under blood pressure.

The rate of respiration was unaffected by strychnin. No change in amplitude of respiratory movement was noted. In four cases out of the twenty five Cheyne-Stokes breathing was recorded on this abnormal respiratory rhythm. In twenty five cases with auricular fibrillation the average rate of the pulse decreased by only 3.4 beats per minute in the hour following the injection. None presented any change in irregularity. The average rate of respiration showed a decrease of not more than one or two respirations per minute alike after strychnin and after pure water. No change was observed in the amplitude of respiratory movements. In one case Cheyne-Stokes respiration was recorded; this remained unaffected by the injection. The authors conclude that strychnin has no effect which justifies its employment as a rapid cardiac stimulant in cases of heart failure.

The Feeding of the Sick Infant.—Dr. Frank C. Neff of Kansas City, Missouri (*Medical Record*, December 13, 1913), stated that one should regard constipation as an evidence usually of an intestinal indigestion. The constipated new born baby fed entirely on the breast was with difficulty relieved through the diet. Correction of

the mother's diet, digestion and mode of living might be tried, but often met with little effect upon the child. He had never attempted to administer fruit juices to infants less than three months old, but older infants would often tolerate from teaspoonful to tablespoonful quantities of orange, grape, pineapple, or prune juice with good results. Supplemental feedings of cow's milk with the addition of a malted gruel, such as the so called malt soup, showed a beneficial effect upon the gray, dry, soapy stools. The effect of malt sugar was laxative and of more benefit than any of the laxative drugs. Following a disturbance in balance which was not corrected there was a decided intestinal disturbance with numerous watery, mucous stools, vomiting, and an elevated temperature. Fats, sugars, and flours must here be reduced, and in severe cases also the whey contents of the food. Breast milk was preferable to any artificial feeding. Next comes Finkelstein's Albumin milk. Finally, skim or buttermilk in case the other foods were not obtainable. These should be given in small quantities at first. The feeding of infants suffering from systemic poisoning resulting from improperly digested and assimilated food and also from infections must provide for elimination through the kidneys and stool. The feeding of infants with pylorospasm had as yet shown little advance. Lapage advised regulating the feeding, using easily digested food that left no residue and had the greatest chance of passing the pylorus. It was advisable to give small amounts, even as little as a teaspoonful, frequently, until the child improved and the vomiting ceased. Sometimes a change of food alone would lead to temporary improvement. Feeding through a tube without much dilution of the food was advisable, after washing the stomach. Nutritive enemata were of doubtful value.

Quinin and Urea Hydrochlorid in the Treatment of Sciatica.—H. A. Cables, East St. Louis, Ill. (*Journal American Medical Association*, December 27, 1913): During 1913 I have treated eight cases of sciatica. In one case the anterior crural as well as the sciatic nerve was involved. These cases were all treated by hypodermic injections of a 4 per cent. solution of quinin and urea hydrochlorid in a normal salt solution into the subcutaneous tissue over the course of the nerves. No attempt was made to inject the nerve. The skin was washed thoroughly with 65 per cent. alcohol. There were fifty injections in all with no untoward result other than the little soreness that always follows any hypodermic injection. Seven patients received six injections each, and one received eight.

Eight months have elapsed since the first case was treated and in

none has there been a return of the attack. All patients experienced decided relief within a short time after the first treatment and none had a severe attack after the third. The injections were given daily for four doses, and then every other day until the patients were entirely relieved of the attack. The duration, prior to beginning injections, varied from thirteen weeks in one, and eight in another, to one week. In many of these cases resort had been made to the use of morphin in order that the patient might obtain rest. Half of the patients had been treated by other physicians for variable lengths of time.

It was owing to a determination not to use morphin that I used quinin and urea hydrochlorid. The patient was a man, aged 55. The duration of the attack at the time of beginning injections was eight weeks. The left leg was the one affected. The patient unintentionally blistered the skin from the hip to the knee in an effort to relieve himself. Medication was as varied as there are remedies recommended for the complaint, with the exception that morphin had not been given. The first injection was given at 2 P.M. and the patient had a comfortable night. Six injections were given in the eight days, when the patient returned to his work and has continued for eight months. Three of the series were women and all were past 40 years of age. The oldest was 63 and the youngest 42. No other medication was used in any of the cases except the first, and none other used on this patient after beginning the injections.

I make this report that others may try the method and thus determine whether or not it has any real merit. I have had no opportunity to try it in facial or orbital neuralgias, but believe it would be equally as efficacious.

Since I wrote this report, a physician at my suggestion treated two cases of facial neuralgia with complete relief following second injection.

Liquid Paraffin as Dressing for Wounds.—Chrysospathes (*Zentralblatt für Chirurgie*, November 8, 1913) found paraffin oil an effectual dressing for sores of all kinds, and reports here that he applied it in treatment of wounds in the Balkan War in 920 cases and the wound healed over in a remarkably short time with a few rare exceptions. Even gaping wounds with exposed bones began to heal at once. The results were even better when he added about 2 per cent. iodoform with particularly severe suppuration. If the gauze sticks, it can be detached by pouring a little more of the oil on it or hydrogen dioxid. He expatiates on the advantages of this

simple method of treatment, which does away with all salve and time stealing procedures. In some of his cases the temperature dropped to normal each time after application of the paraffin, but rose again when the oil was suspended. He has been using this method for some years, having found it also effectual for sterilizing catheters and healing bed sores.

Tonsillar Extirpation.—Dr. Gottfried Trautman, in a paper on the "Technic of Extra Capsular Total Extirpation of the Tonsils" (*Munch. Med. Woch.*, October 7, 1913), says, in describing his method of anesthetization: "I object to general narcosis as a rule, as the operation can be done absolutely painlessly under local anesthesia within a very short time. I paint the tonsillar region with a 10 per cent. cocain solution, then inject 5 c.c. of a 2 per cent. novocain-suprarenin solution underneath the epithelium, using a curved needle. This is injected into various parts, one into the soft palate above the posterior arc, then at three points in the posterior palate arc from above downwards, the same manner into the Anterior palate arc, and finally into the glossopalatine junction. Tonsil remains untouched. The injected area must present itself like a large pemphigus. After five minutes sensation begins to disappear and soon becomes complete."

Uric Acid Mistaken for Sugar.—The danger of diagnosing glycosuria in the absence of sugar, when uric acid is abundant in a urine, needs special mention. Uric acid has considerable power of reducing Fehling's solution. It seldom gives the copious brick red or orange yellow precipitate that is characteristic of abundance of sugar, but it may give just enough reduction or change of color to make it doubtful whether sugar is present or not. More than a few proposers for life insurance have suffered unfairly on this account; no such partial reduction should be regarded as due to sugar until the presence of glucose has been confirmed by other means, particularly the phenylhydrazine and the fermentation tests.—Herbert French, in the "Index of Differential Diagnosis."

Experimental Studies in the Physiology of the Hypophysis.—Schlimpert's experiments (*Zentralblatt f. d. ges. Chir. u. ihre Grenzgebiete*, Bd. III, Heft 3, 1913) in the ear of the rabbit have proved that the pituitary bodies, especially the posterior lobe of preg-

nant cows, show no increase over those of nonpregnant cows. Hypophysin is only in the posterior lobe, and not in any other part of the brain, and especially not in those parts which are similar in their development to the pituitary posterior lobe, the tuber cinereum and its surroundings. Hypophysin could be found in the ten weeks' embryo of the cow and in a six months' human fetus through its vasoconstrictor effect in the ear of the rabbit. From the twenty-eighth week on the same could also be demonstrated in the embryo of the cow through the breathing effect.

Treatment of Diabetics with Carbohydrates.—George Rosenfeld, of Breslau (*Berliner Klin. Wochenschr.*, 1911, Nr. 29), discusses the various carbohydrates as substitutes for glucose in the treatment of diabetes and gives the result of his experiments as follows:

Hediosit is a sweet compound, taken quite readily, and represents to the diabetic an oxidizable nutriment. It not only does not increase the glycosuria in the severest cases, but often diminishes it, and gives in mild cases a better effect to the markedly restricted diet. An antiaacidotical effect is entirely absent. To summarize: Hediosit is in many cases an effective remedy in the dietetic treatment of the diabetic. It is better taken in tea, from 150 to 450 grains pro die, and will, of course, give the most favorable effect in cases in which it does not cause any purgative effect. It is advisable to first administer Hediosit, then again after two to three days, then wait two days, then continue at three day intervals.

Local Anesthesia in Mammary Amputation for Carcinoma.—N. M. Kron, *Zentralblatt f. d. ges. Chirurgie u. ihre Grenzgebiete*, Bd. III, H. 2, 1913: Local anesthesia was applied in mammary amputation for the first time by Hirschel. As it had never been used in Russia, the author relates a case of a woman of seventy with myocarditis, dilatation of aorta and emphysema, and used local anesthesia. The anesthetization started with injection near the brachial plexus, in the intercostal nerves. He used in all 65 c.c. of a 5 per cent. novocain solution and 50 c.c. of a 0.25 per cent. solution with addition of 8 to 9 drops of adrenalin during the operation.

The amputation of the breast and the cleaning of the axilla were done easily without pain. The patient was dismissed after ten days as cured.

Use of Suprarenal Extract in Hiccough.—J. Ségal, in *Journal des Praticiens* for August 23, 1913, reports a case of obstinate hiccough in a patient suffering from renal colic, in which, after large doses of bromide, chloral hydrate, chloroform, and cocaine, injections of morphine, gastric lavage with silver nitrate solution, spraying ethyl chloride on the epigastrium, and even general chloroform anesthesia failed to bring relief in the course of eleven days, administration of suprarenal extract proved promptly effective. The patient took ten drops of the one in 1000 solution; at once the hiccough became milder and less frequent, and upon repeating the dose half an hour later the symptom completely and permanently disappeared. The action of the drug in relieving hiccough is compared by the author with the "antispasmodic" action it is well known to exert in bronchial asthma.

Bichloride Tablets.—Health Commissioner Lederle announced on December 6 that the Board of Health of the City of New York has adopted an amendment to the sanitary code to go into effect on March 1, 1914, to read as follows:

Bichloride of mercury, otherwise known as corrosive sublimate, shall not be held, kept, sold or offered for sale at retail in the dry form except in colored tablets individually wrapped, the wrapper to have the word "poison" in plain letters conspicuously placed, and dispensed in sealed containers of glass, conspicuously labeled with the word "poison" in red letters. This section does not apply to tablets containing 1/10 of a grain or less of bichloride of mercury.

The Danger of Combining Morphine with General Narcotics and Hypnotics.—Straub (*Münch. med. Wochenschr.*, August 19, 1913), in referring to the common employment of morphine before general narcosis, calls attention to certain danger in this procedure. In a case where chloroform was given after a preliminary injection of morphine for a minor operation, death resulted from respiratory paralysis, although the general narcosis was not a deep one. By means of experiments in rabbits it was shown that the slowing of the respiration remained for several hours after the injection and if a general narcotic or hypnotic had been administered, this rate was further diminished.

Pituitary Extract in the Treatment of Constipation.—B. A. Houssay and J. Beruti report in *La Presse Médicale*, favorable results following the hypodermic administration of pituitary extract as

a means of stimulating intestinal peristalsis. The injection of 2 cubic centimeters often produces an evacuation at the end of one or two hours. If 3 cubic centimeters be used, then defecation results in from six minutes to one hour. It is pointed out that the doses that stimulate peristalsis are higher than those that excite uterine contraction.

Treatment of Anal Fissure.—Roux, in *Lyon Médical* for July 13, 1913, is stated, on the basis of eight cases treated by him, to approve strongly of a method first recommended by Lewis, of Brooklyn, which consists in applying to the fissure, held open for the purpose, a saturated solution of potassium permanganate. Sharp pain is induced, but this may be avoided or at least greatly lessened by previous application for a few minutes of a small tampon dipped in a 2 or 3 per cent. solution of cocaine hydrochloride. The application of permanganate solution is made daily. Cure results frequently in two or three days.

Treatment of Pernicious Anemia.—Windesheim, in the *Münchener Med. Wochenschrift*, October 7, 1913, states that prompt improvement followed intragluteal injection of 10 c.c. of still warm human blood at intervals of ten or fifteen days. The patient was a woman of fiftytwo, with signs of pernicious anemia, entire loss of appetite and repeated vomiting. Seven injections of the blood were made in the course of four months, and the blood regained nearly its normal composition and the patient now feels well and comparatively strong.

The Toxicity of Methyl and Ethyl Alcohol.—The close chemical relationship and the similarity in physical properties and behavior of methyl and ethyl alcohol, the two chemical compounds which form the essential ingredients of wood alcohol and grain spirits, respectively, have made it difficult to believe that they could be so distinct and unlike in respect to their toxicity. For this reason we find the question recurring again and again as to whether the undoubted noxious character of wood alcohol is not, after all, associated with some byproduct or impurity, rather than the methyl alcohol itself. It is not so long since precisely the same hypothesis was postulated for ethyl alcohol and whiskey, and it was maintained that pure alcohol is far less harmful than the cruder distillates that are sold for human consumption. A growing collection of evidence is making it manifest, however, that we cannot neglect the funda-

mental toxicity of the alcohols themselves which form the chief and physiologically most significant ingredient of the fluids in which they enter into commerce. Langgaard of Berlin has contributed new demonstrations of certain significant facts in relation to the two alcohols. In small, frequently repeated doses methyl alcohol is far more poisonous than is ethyl alcohol. A single large dose of the latter may, however, provoke a more toxic manifestation than does methyl alcohol. It would appear as if methyl alcohol, administered in small repeated quantities, brings about a cumulative effect. In explanation it has been suggested that the alcohol tends to be retained in parts of the central nervous system, there to be slowly oxidized to formic acid. All drugs with cumulative manifestations should be the objects of unusual solicitude in respect to the hidden dangers which they harbor.—J. A. M. A.

Intestinal Hemorrhage in Typhoid Fever.—At the twentyeighth annual meeting of the Association of American Physicians, held in Washington, D. C., on May 6, 7 and 8, 1913, the following were among the papers presented by R. D. Rudolf, of Toronto:

Intestinal hemorrhage in typhoid fever has always been considered a serious complication in this disease, although a study of the literature shows that the degree of seriousness attributed to it has varied greatly according to different authorities, some thinking it always of grave omen, while others have pointed out that it often produces an amelioration in the symptoms and seems to initiate recovery.

An analysis of the last 1,591 cases of typhoid occurring in the Toronto General Hospital shows that both these views are right in that the cases in which hemorrhage has occurred have a much higher death rate than have the others—37 per cent. as against 6.3 per cent.—and yet, on the other hand, many of these hemorrhage cases showed at least a temporary marked improvement, not only in the temperature, but also in the pulse rate and general condition. The high death rate in cases showing hemorrhage must be due to either (1) excessive loss of blood, or (2) to the fact that such cases have more or less deep ulceration and hence are more apt to have perforation and peritonitis. Again, bleeding is most apt to occur in the very toxic cases and many of them succumb to toxemia.

It is suggested that in some severe toxic cases of typhoid the good effects which so often occur from hemorrhage may be attained and the dangers avoided by the employment of timely venesection.

The Diagnosis of Pulmonary Abscess.—G. W. Norris and H. R. Landis, of Philadelphia, stated that the present paper is based on a

study of sixty-six cases. Acute abscess of the lung is generally of metapneumonic origin, but may follow some acute inflammatory condition of the lung itself. Acute abscesses may be single or multiple. Single abscesses most commonly follow some acute pulmonary affection, or the lodgment of a foreign body in the lung, while multiple abscesses occur most frequently as the result of metastasis from a suppurating point in other parts of the body.

Single abscesses are most frequently found in the right lung. Of thirty-one cases in this series, twenty-three were found in the right lung, and of this number eleven were in the lower lobe.

Multiple abscesses are commonly bilateral. They are small and usually occur in large numbers. Occasionally they are limited to one lung or even one lobe.

The most important symptom of a single abscess is the sudden appearance of large quantities of purulent sputum. Rarely this occurs with multiple abscess formation. As a rule, multiple abscess formation has no distinctive symptom, unless the abscesses are few in number and large.

The physical signs are not constant. Cavity signs may or may not be present. The X-rays are sometimes of service in locating the abscess.

The diagnosis of a single abscess depends on the etiologic factors, the character of the sputum and the physical signs. In the diagnosis of multiple abscesses, the etiologic factor is the most important consideration.

Scarlet Fever and Nephritis.—John McCrae, of Montreal, reports: From analysis of the case reports of 1,200 cases of scarlet fever treated by the writer in exactly the same way, viz., confinement to bed and a strict milk diet for twenty-one days, irrespective of the severity of the attack, he concludes that fatal cases of nephritis appear to occur only in carelessly treated cases; in some 1,700 cases so treated, the writer has never seen a uremic convulsion nor a fatal case, although such have frequently been admitted to the hospital at the onset of severe symptoms in patients treated at their homes, and presumably carelessly. Nevertheless, with such precautions, a certain number of cases of nephritis arise, and even if the initial attack be not a severe one, it may well be supposed that most of the patients so suffering are gravely handicapped in subsequent life. The writer considers that, whereas it has aforesaid been customary to lay too much stress upon the possibility of nephritis, there yet exists a very reasonable cause for the greatest care and strictness in the treatment of scarlet fever.

THERAPEUTIC PROGRESS

Pituitary Extract.—B. P. Watson (*Can. Med. Asso. Jour.*) states that:

1. Pituitary extracts have a powerful effect in inducing and in strengthening uterine contractions.

2. The type of contractions induced is similar to that which occurs normally, although at first there may be a tendency to prolongation of the pains.

3. Such prolonged contractions result in slowing of the fetal heart, but the child is seldom in danger.

4. When given in the late part of the first and in the second stage of full time labor the polarity of the uterine contractions is not interfered with, but in early abortions and early in the first stage a simultaneous spasm of the os may occur.

5. Its chief field of usefulness is in the first and second stages of labor, when there is delay due to feebleness of the pains alone or when combined with other complications, such as malpositions of head, malpresentations, multiple pregnancy, slight narrowing of the pelvis, etc.

6. In the induction of abortion, in the treatment of abortion already in progress, and in incomplete abortion, its action is so uncertain that it is not to be recommended, except in cases where the os is widely dilated.

7. In the induction of premature labor, its effects are uncertain, but if sufficient dosage be given they may be good.

8. In the induction of labor at full term and after, better results are obtained than in premature cases.

9. It gives good results in many cases of post-partum hemorrhage, but is not superior to the various preparations of ergot. It has the power of sensitizing the uterus, so as to allow these preparations to act more powerfully, the combination being most effective.

10. It is a useful adjunct in the treatment of placenta previa, used in conjunction with rupture of the membranes, the use of hydrostatic dilators, or turning.

Emetine in the Treatment of Hemoptysis.—Impressed by the prompt disappearance of blood from the stools in amebic dysentery treated by hypodermic injection of emetine, Dr. C. Flandin (*Journal American Medical Association*) thought of the possibility of the drug's proving effectual in treatment of hemoptysis, and the results have more than justified this anticipation. He used the remedy by injecting into the thigh 1 c.c. (15 minims) of distilled water containing 0.04 ($\frac{3}{8}$ grain) of emetine hydrochlorid. The result of the injection was surprising, the hemorrhage from the lung stopping immediately. No disagreeable sensation was experienced, no palpitations, dizziness or nausea. In some cases there was no longer a trace of blood in the sputum, but usually there were occasional blackish clots for a time.

In the more threatening cases the hemoptysis may return and consequently he repeats the injection twelve hours later and once on the following day to a total of five. With the exception of one case of "galloping" tuberculosis, the tendency to pulmonary hemorrhage was definitely arrested in all his eight

cases, as also in twelve others in the experience of other physicians. He determined the arterial pressure before and after the emetin and was unable to note any appreciable change in this or in the coagulation of the blood or the blood count. The measure seems to be entirely harmless and has succeeded when all others have failed.

Calcium Salts in Internal Affections.—Kayser (*Berliner Klinische, Wochenschrift*, December 8, 1913) gives a review of the subject concluding that the salts act upon the blood vessels by tightening the unduly permeable vascular wall thus promoting coagulation and stopping exudation. Further, they influence the excitability of the nervous system by depressing the exudation, especially the negative and autonomous, and are therefore indicated in internal medicine, especially tetany, epilepsy, hay fever, and bronchial asthma, in all of which they are used successfully. In disturbances of the calcium metabolism, such as in rachitis, osteomalacia, and Graves disease, they are also indicated. Through their ability to increase phagocytosis, lime salts would appear indicated in infectious diseases, such as pneumonia and tuberculosis. They are antidotes in oxalic poisoning, and may be given per os, subcutaneously, by rectum or intravenously. They should be given for one or two weeks.

Yohimbine.—Potter, in *Materia Medica, Pharmacy and Therapeutics*, refers to Yohimbine as follows: It is an alkaloid obtained from the bark of the Cameroon tree, indigenous to East Africa. Is highly aphrodisiac and a powerful local anesthetic. It is efficient in pure forms of sexual impotence, but not in those due to constitutional or organic disease, and has slight influence in persons of advanced years. Is contraindicated in all acute and chronic inflammations and hyperemia of the abdominal and pelvic viscera. As an anesthetic it acts efficiently when applied directly to a nerve or to the mucous membrane, but produces local hyperemia instead of the anemia caused by cocaine. It is readily decomposed by light, hence its solutions should be kept in amber colored bottles and in a dark place.

Camphor as an Antipyretic in Pulmonary Tuberculosis.—Weihrauch (*Berliner Klinische Wochenschrift*, December 1, 1913) reports on use of camphor used sub or percutaneously as an antipyretic for pulmonary tuberculosis, stating that it will lower the temperature 20 per cent. He is uncertain how this effect on temperature is brought about, but thinks it probably results from an inhibitory action on the germ excitors of the disease, and perhaps also from a diminution of the catarrhal state of the mucosa. He declares camphor entirely harmless to the consumptive.

What Can Be Done in Cancer with Roentgen Rays.—Pusey (*The Journal of the American Medical Association*, August 23, 1913) illustrates his article with some very marked cures. He believes the Roentgen ray is an agent of great value in cutaneous epitheliomas and in localized inoperable cancers near the surface of the body. He also believes that the rays should be used as a measure of prophylaxis after operations for such growths. In deep cancer the rays are practically valueless.

MISCELLANY

CAMPHOR IN THE TREATMENT OF PNEUMONIA

Pneumonia, called by Osler a self limited disease against which no method of treatment is of any avail, is, in the experience of very many able and observant practitioners, one of the most amenable to proper treatment, except in the rare cases of massive infection, of all the infectious diseases.

Some years ago August Seibert, of this city, published a report of a number of cases of pneumonia treated by hypodermic injections of large doses of 20 per cent. camphorated oil, and also gave the results of a number of experiments with camphor injections in rabbits previously inoculated with cultures of the pneumococci. These reports were published in the *Münchener medizinische Wochenschrift*, No. 36, 1909, and in the *Medical Record*, April 20, 1912. Seibert's observations have been confirmed recently by Leo, of Bonn, in two communications to the *Deutsche medizinische Wochenschrift*, Nos. 13 and 15, 1913. In the first of these the author says that the experiments thus far made in cases of pneumococcus infection indicate that camphor has a specific action against pneumonia, and in the second he quotes from Ehrlich to the effect that Böhnke, experimenting on mice in the Institute at Frankfort, had succeeded in curing pneumococcus infection by subcutaneous injections of camphor oil. Iverson also, writing in *Pract* of January, 1912, reported good results with injections of 20 per cent. camphor oil, and noted that the toxemic symptoms were markedly ameliorated in all cases, even in the alcoholics and in those who finally succumbed. These observations of Seibert, confirmed by workers in Bonn, Frankfort and St. Petersburg, and the earlier successes with creosote carbonate, the salicylates, and calomel, should suffice to down the pessimism which so long dominated the therapeutics of pneumonia and other infectious diseases, but which is now disappearing along with the dying school of therapeutic nihilists.—Editorial in *New York Medical Record*.

OUR GRANDMOTHERS' HERB GARDEN

Old Fashioned Remedies and Their Uses

FOR COLDS

A drink of hot Sage Tea on going to bed. Pennyroyal or Catnip can be used in place of Sage.

Horehound, sweetened with Honey, to relieve a cough, or Garden Hyssop to answer.

A poultice of Hops and Ryemeal applied to the neck or chest.

Thoroughwort and Ginger mixed, to remove all relics of a cold.

Cider and Molasses, steeped with a pod or two of Red Peppers, and drunk hot.

FOR RHEUMATISM

Wormwood, or Wormwood and Peppermint mixed.
Red Peppers steeped in Cider Vinegar.

FOR STITCH IN SIDE

A plaster of Pitch and Apple.

NEURALGIA IN THE THIGH

A poultice of cold raw Carrots, pound or grate till smooth and soft.

FOR FELONS

A poultice of the root of Wild Evening Primrose, grate or pound to pulp, boil in milk or water, thicken with cracker, and apply hot.

SPRING MEDICINE

A few chips of Black Birch inner bark, a few sprigs of Hemlock or Spruce, a handful of Checkerberry Root, a small root of Horseradish, some roots of Wild Sarsaparilla, some chips of White Pine, a small amount of the bark of Sassafras root, a handful of roots and leaves of Pipsissewa, the same of Pear Leaf Wintergreen and of Lettuce Liverwort. Brew in water, strain into jar, add water, sweeten with Molasses or Brown Sugar to taste. When cool, add a cup of Hop Yeast. Keep in warm place until fermented, then bottle and keep in cool place.

FOR CUTS, SPRAINS AND BRUISES

Fill pint bottle half full of buds of Balm of Gilead gathered in April, then fill bottle with New England Rum. Cork tightly.

Collect the cotton bloom from Ament, and use as lint for cuts and bruises.

FOR BLACK AND BLUE SPOTS

The root of Solomon's Seal, fresh and green.

FOR JAUNDICE

Yellowdock and Barberry Bark, steeped in water and drunk before meals.

Black, or Rum, Cherries preserved in spirits.

FOR TICDOULOUREAUX

A hot boiled Potato poultice, applied to the affected part.

FOR SUNBURN

Green plantain leaves.

FOR LOSS OF SLEEP

A pillow of Hops, carefully dried so as not to lose the pollen, or a pillow of Life Everlasting Flowers gathered before frost.

FOR INFLAMED EYES

Boiling water poured on the Pith of Elder.

FOR EARACHE

The core of a roasted Onion, applied hot.

FOR BURNS AND CRACKED HANDS

Equal parts of Houseleek and green bark of Elder, simmered in milk and water till soft, strain to remove all dregs, add a part of fresh churned unsalted butter, a bit of bee's wax, sinmer again until smooth, then place in a big mouthed bottle and set away for future use.

FOR NAUSEA

Spearmint Tea, sweetened, and drunk hot.

THE OLD RELIABLE HEADACHE CURE

The patent medicine craze had a firm hold on its victims away back in Queen Anne's time, as the following, reprinted from Addison's Spectator, "A Treatise of the Hypochondriack and Hysterick Passions, vulgarly called the Hypo in Men and Vapours in Women," was advertised, as well as many nostrums, of which the following is a typical notice:

The Vapours in women infallibly Cured in an Instant, so as never to return again, by an admirable Chymical Secret, a few drops of which takes off a Fit in a Moment, dispels Sadness, clears the Head, takes away all Swimming, Giddiness, Dimness of Sight, Flushings in the Face, etc., to a Miracle, and most certainly prevents the Vapours returning again; for by Rooting out the very Cause it perfectly Cures as Hundreds have experienced: It . . . causes Liveliness and settled Health. Is sold only at Mrs. Osborn's Toy-shop, at the Rose and Crown, under St. Dunstan's Church in Fleet Street, at 2s. 6d., the Bottle, with directions.—*The Atlantic Monthly*.

A HOT DAY ON THE BLEACHERS

We follow the game in quite tolerable misery. Hot? It was never so hot. Pitilessly the sun beats down from a sky broken only by the fleecy white clouds that the players call "angels," because they afford so benevolent a background for the batted ball. Though sunstroke seems inevitable, inning succeeds inning, with nine men walking away slowly, nine others coming up on the run, till the ultimate inning is now nearly completed. Jubilant moments there have been—jubilant moments and moments glum; awful suspense, too, and at this, the eleventh hour, the score stands three to two against us. Amid terrific cheers, great Murphy strikes an attitude as of the Colossus of Rhodes, fire in his eye, desperate determination in his heart. His cudgel menaces the pitcher. Two men on bases dance nervously sidewise, ablaze with excitement. There are cries from the coachers, mingling oddly with "Ice cold moxie!" and "Fresh

popcorn, five a bag!" The pitcher holds the ball meditatively beneath his chin and glares defiance. He coils himself up "like a dis-solute bedspring," lets loose, and then—oh, mad instant! The ring of a bat, flying forms that fling themselves feet first along the ground in clouds of dust, other forms with heads thrown back and faces upturned, one horror stricken figure moving across the far, far background, his posture that of anguish hoping against hope—the victory is ours! We howl.—*The Atlantic Monthly*.

HOW OUR ANCESTORS DRESS US

Once gentlemen wore sword belts and gauntlets; these have disappeared; but their ghosts still guide all tailors, and two useless buttons are invariably sewed upon each cuff, and two others at the back of the frock coats, of all afternoon males.

Somewhere about 1753 a hatter named John Hetherington, of London, made and wore the first tall hat, now known as the silk, full dress, plug, or stove-pipe hat. A horse saw him and ran away. The owner of the horse sued Hetherington, but lost his case, the judge doubtless holding that an Englishman has an inalienable right to dress as ugly as he could. One time there was a king who had a deformed knee; he abandoned the knickerbockers, which revealed the weakness of the royal leg, and took to long trousers. Hetherington and the king have long since gone to their reward, but their ghosts still ride civilized man, one at one end, and one at the other, from Paris to Tokio; and Lord-a-mercy! we daren't even laugh at the spectacle!—*The Atlantic Monthly*.

AN AGE OF PROPHYLAXIS

The cleaning up of Cuba and sanitarizing of Panama were but the beginning of a general evangelizing of the world with the gospel of prophylaxis. Colonel Gorgas is, of course, the head of the great missionary movement, and his next objective is the diamond fields of Kimberley in South Africa. The Rockefeller hookworm campaign in the Carolinas and in Georgia is another instance of a propaganda that has spread to China and the Philippine Islands. Is this movement inspired by science to rank with the old Crusades and with the later enterprises of the religious missionaries?

MOLECULES AND ATOMS

The year 1913 recorded the first demonstration visible to the eye that all matter is composed of molecules, built up of atoms in crystalline forms. By passing X rays through a crystal an "interference photograph" resulted, showing the so-called space lattice of the crystal, and giving conclusive ocular proof of Dalton's atomic theory.

BOOK REVIEWS

A Text-Book of the Practice of Medicine. By JAMES M. ANDERS, M.D., LL.D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Eleventh Edition thoroughly revised. Octavo of 1335 pages, fully illustrated. Cloth, \$5.50 net; half morocco, \$7.00 net. W. B. Saunders Company, Philadelphia, London, 1913.

A text-book reaching eleven editions must surely have met the demand of student and practitioner. To have rewritten and revised a work on the Practice of Medicine eleven times in comparatively a few years, more especially in this age of rapid advance in medicine, when theory and practice undergo changes from empirical medication to therapeutic nihilism, and back to the scientific administration of drugs and physiologic measures whose use is based on clinical research, must surely task the abilities of any man, especially one constantly engaged in teaching and the care of patients in hospitals and private practice. That Prof. Anders has accomplished this herculean task exceedingly well is clearly in evidence. This voluminous work before us of over thirteen hundred pages is a monument to the exacting activities of the medical teacher and author.

In addition to revisions of the text of the previous edition, numerous treatises on newer methods of treatment, newly discovered conditions influencing the individual in health and disease, so prolific in the last decade, almost, we might say, in the last year, are included in this volume. Pellagra, Diseases of the Ductless Glands, Neuroses of the Heart, and Diseases of the Intestines, not in the previous edition. The use of various Sera, Toxins and Vaccines are discussed. In fact, it occurs to the reviewer that the book is right up to date of publication, but such is the rapid advance, especially in treatment, that already the author must busy himself in collecting further material for a future edition.

The paper, presswork and binding are all to be desired, while the illustrations are numerous and illuminating.

History of Medicine, with Medical Chronology, Bibliographic Data, and Test Questions. By FIELDING H. HARRISON, A.B., M.D., Principal Assistant Librarian, Surgeon General's Office, Washington, D. C.; Editor of the *Index Medicus*. Octavo of 763 pages, many portraits. W. B. Saunders Company, Philadelphia and London, 1913. Cloth, \$6.00 net; half morocco, \$7.50 net.

Here is a work the reading of which will gladden the heart of the physician and the scholar, a work which will be widely read, one that will add largely to the culture of the medical man, historian and professional men generally. It introduces us to Medical History in the times of ancient Egypt, 4500 years B.C., in the time of I-em-hetep ("He who cometh in peace"). He who was worshipped at Memphis and had a temple created in his honor upon the island of Philæ; the earliest known physician; along down the corridors of time to the 20th Century A.D., including Sumerian and Oriental Medicine, Greek Medicine, before and after Hippocrates; The Byzantine Period; Mohammedan and Jewish Periods; Medieval Period; The Period of the Renaissance, the Revival of Learning and the Reformation; The Seventeenth Century; The Age of Individual Scientific Endeavor; The Eighteenth Century; The Age of Theories and Systems; The Nineteenth Century; The Beginnings of Organized Advancement of Science; The Twentieth Century, the Beginning of Organized Preventive Medicine; with Appendices of Medical Chronology, Bibliographic Notes, etc.

A most enjoyable feature of this work is the photographs of physicians and scientists; a remarkable collection to be included in one volume.

It would be impossible to do justice to this work in a medical journal review. It must suffice, therefore, for us to enjoin medical men, men of other professions, men and scholars in general, of the pleasure, albeit instruction, culture, awaiting them in the reading of this notable work.

Genito-Urinary Diseases and Syphilis. By EDGAR G. BALLENGER, M.D., Adjunct Clinical Professor of Genito-Urinary Diseases, Atlanta Medical College; Editor, *Journal-Record of Medicine*; Urologist to Wesley Memorial Hospital; Genito-Urinary Surgeon to Davis-Fisher Sanatorium; Urologist to Hospital for Nervous Diseases, etc., Atlanta, Ga., assisted by Omar F. Elder, M.D. The Wassermann Reaction, by Edgar Paulin, M.D., Second Edition Revised, 527 pages, with 109 illustrations and 5 colored plates. Price \$5.00 net. E. W. Allen & Co., Atlanta, Ga.

This, the second edition of Ballenger's Genito-Urinary Diseases and Syphilis, has been revised and largely rewritten. It is true, as the authors state in their preface, that "on this subject"—albeit all subjects related to medicine—"an adequate treatise of yesterday becomes an outworn garment of today." It is noteworthy that genito-urinary surgery has kept pace with the advance of medical sciences. In no field of surgery was this advance so needed. But is the advance not almost entirely confined to the G.U. specialist? Is it not true that the general practitioner in the smaller centers treat gonorrhea and syphilis as did the preceding generation? Is not astringent solutions given at once on discovery of a discharge from the urethra and the disease declared cured upon the disappearance of the discharge? What percentage of men treating gonorrhea do or could discover the offending organism with the microscope or have recourse to its use even in the hands of an expert? We preach the eradication of venereal disease, but how abolish its ravages while the gonococci are locked up in the sub-mucous tissues of the urethra, and posterior urethritis is thus allowed to follow with its disastrous sequelae to plague the patient or cause infection to the innocent.

The authors appreciate these dangers, and give wholesome and sound advice in this work, advice which should by some means be brought to the understanding of all who treat gonorrhea. In fact, we think it would be wise to enact laws in all States which will forbid any one treating either gonorrhea or syphilis who has not passed an examination by qualified specialists and been licensed. How otherwise can it be expected that venereal diseases be abolished, for venereal diseases are ubiquitous? We commend this work to all medical men.

Practical Prescribing, with Clinical Notes. By ARTHUR H. PRITCHARD, M.R.C.S., L.R.C.P., R.N. (Rtd.), Late House Physician, The Brompton Hospital, and Resident Surgeon, R.N. Hospital, Gosport. Henry Frowde and Hodder and Stoughton, Oxford University Press, Warwick Square, E. C., London, 1913.

The author of this small work has accomplished his purpose, "to supply information likely to be of service to those studying clinical medicine, and more especially to those who wish to obtain practical knowledge of prescribing," for the book is full of valuable information. While necessarily brief, it encompasses more therapeutics than is found in many pretentious works on that subject. It is not only notable for the prescription sheet, but for etiology, symptomatology, diagnosis and treatment, while the notes on the various agents used, their physiological action and the comments make, as above stated, a valuable *vade mecum*.

The Elements of Bandaging and the Treatment of Fractures and Dislocations. By WILLIAM RANKIN, M.A., M.B., Ch.B. Sixty-eight Original Illustrations. Henry Frowde and Hodder and Stoughton, Oxford University Press, Warwick Square, E. C., London, 1913.

This small manual, intended primarily for students, contains details not easily found in text books. It is well illustrated and of handy size.

The Practitioner's Practical Prescriber, and Epitome of Symptomatic Treatment. By D. M. MACDONALD, M.D. Henry Frowde and Hodder and Stoughton, Oxford University Press, Warwick Square, E. C., London, 1913.

This small book contains useful information. It gives numerous formula for treating most diseased conditions; is brief, but to the point. The medical student will find it helpful.

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ORIGINAL ARTICLES

INTERNAL GLANDULAR SECRETIONS AND THEIR INFLUENCE ON THE CAUSATION AND TREATMENT OF DISEASE*

By R. MURRAY LESLIE, M.A., B.Sc., M.D.

*Senior Physician, Prince of Wales's General Hospital;
Physician, Royal Hospital for Diseases of the Chest*

Contributed to THE AMERICAN PRACTITIONER

The subject of internal secretions and their relation to physiological and pathological processes is one of the most important questions that can engage the attention of the modern practitioner of medicine. Sir E. A. Schäfer has recently stated that it is of quite as much importance from the clinical and pathological point of view as from the physiological aspect, and adds that our scientific knowledge regarding internal secretions is the product of the last twenty-five years. Even now, however, the information at our disposal is a mixture of ascertained facts (accurate knowledge) and conjectures, and it will be our task in this lecture to differentiate as far as possible between these.

The term "internal secretion" was first employed by Claude Bernard† in 1855, when referring to the glycogenic function of the liver, which, curiously enough, is not now regarded as coming precisely within the category of internal secretions. The modern theory of internal secretions may be considered in some respects as the legitimate successor of the ancient doctrine of the humoral origin of disease advocated by Hippocrates and his followers, and which obtained throughout the middle ages. It was then held as a cardinal medical principle that if a person were ill the humors of the

*Lecture delivered at the Medical Graduates' College and Polyclinic on July 3, 1913.

†Bernard, Claude, *Leçons de Physiol. Expert*, Paris, 1855, i, p. 96.

body had somehow gone wrong. The old humoral physiology of Hippocrates and Galen referred to the various humors, which were respectively differentiated under the terms "yellow bile," "black bile," "phlegm," etc. The humoral principle cannot be said to be fundamentally altered now that we are enabled by means of modern chemical and physiological investigation to isolate many of the specific active ingredients and to determine their actual functions in the animal economy.

It was the discovery of the marvelous controlling influence of the central nervous system on the functions of the animal tissues and organs that led to the discarding of the ancient humoral theory, but recent biochemical investigations have conclusively proved that the nervous system is no longer to be regarded as the only important controlling influence in respect to the coordination and interaction of many of the chief physiological functions, and indicate that specific chemical reactions exert a still greater influence in this direction. Sir William Whitla, in his recent annual oration delivered to the Medical Society of London, states that the more closely we examine the physical and vitalistic conceptions of drug action, the more certain does it appear that behind the operation of physical laws and vital activity chemical reactions are continually taking place, which are the real cause of the physical forces being themselves set in motion, and that this is indeed a necessary consequence of the recognized laws of relationship between the chemical constitution of a drug and its physiological activity. It is even possible that the nervous system itself is to a large extent controlled by chemical stimuli. Without going so far as the physiologist, Richet, who states that the living being is a chemical mechanism—and perhaps nothing more—many observers believe that chemical investigation will do more than anything else to explain the processes of life. Even in quite the lowest grades of animal life, before any central nervous system has come into being, we find a definite co-adaptation of function which can only be the result of biochemical activity. Thus the apparently volitional movement of ameboid organisms (*e. g.* selection and pursuit of food particles) is undoubtedly the result of the biochemical principle known as chemiotaxis. Certain chemical substances are known to powerfully attract leucocytes, and their immigration into an inflammatory area is probably determined by a chemical change in the protoplasm of the injured tissue or to the presence of a soluble chemical substance in its fluid constituents. The protrusion of pseudopodia by an ameboid organism and the mutual attraction of the sexual gamete cells may also be attributed to chemiotaxis.

Starling believes that the rudiments of the nervous system have arisen as the result of special "reactive cells" being set apart for specific purposes. Pursuing the analogy of the ameba still further, just as the presence of food particles stimulates the chemical processes of metabolism, Bayliss and Starling have shown that the mere presence of food in the alimentary canal excites the formation of certain chemical secretions ("messenger substances"), which produce adaptation of the activities of the liver, pancreas and other digestive glands. Such coadaptation of function is one of the principal results of the biochemical activity of internal secretion.

Vincent* defines internal secretion as "the preparation and setting free of certain substances of physiological utility by certain cells of a glandular type, the substances so set free being passed out into the blood stream, either directly or indirectly by way of the lymphatics. The word "secretion," therefore, may be applied not only to the actual liquid or semiliquid products formed by the glandular organs, but also to the process of their manufacture and liberation." The word "internal" serves to distinguish these products of secretory activity from "external" secretions, where the products pass into some special channel of exit, *e. g.* bile, duct or ureter. At the same time an external secreting gland, such as the liver, pancreas, or kidney, may likewise possess the function of internal secretion.

Brown-Séquard is regarded as the real founder of the modern doctrine of internal secretions. It was at a memorable meeting in Paris of the Société de Biologie in 1889 that Brown-Séquard, then seventy-two years of age, described the experiments which he carried out by means of subcutaneous injections of testicular extracts upon his own person. In his own case he found that as a result of these injections he experienced an extraordinary increase both in physical strength and mental activity. In an address before the Medical Faculty of Paris he for the first time expressed the view that "*all* animal tissues and glands with or without ducts supply to the blood substances which are either useful or essential, and the lack of which may produce disease." He showed experimentally that there is a chemical interchange between the different organs, which he regarded as of the highest importance.

By publishing his experiments in respect to the influence of the generative organs and other glands on the body generally, and the marvelous results in his own person of the administration of extracts of these glands, Brown-Séquard laid the foundation of modern organotherapy, which is even now sometimes described as the "Brown-Séquard method of treatment." It is interesting to note,

*"Internal Secretions," Edward Arnold, London, 1912.

however, in passing, that Celsus and Pliny used various animal substances for the relief of symptoms (*e. g.* rennet for dyspepsia, wolf's liver for hepatic disease, and stag's testicles for sexual impotency).

The recent researches in Europe and America have shown that Brown-Séquard, whose ideas were scouted in his lifetime, was not only a pioneer in an entirely new department of medicine, but indicate also that his name is destined to take its place as one of the greatest in the history of medicine.

It is now held that the power of internal secretion is not a property of all animal cells but is vested in certain special cells and organs, each of which secretes a specific product which passes into the blood stream and exerts a definite chemical influence upon other tissues and organs. Intracellular enzymes have been included by some writers among the internal secretions, even although during the lifetime of the cell they are bound up in the protoplasm. Some observers go so far as to suggest that life itself may be nothing more than the sum total of the activities of the enzymes contained within living matter.

The English physiologists, Starling and Bayliss, have made a special study of gastric and intestinal secretions, and have found that the cells of the intestinal mucous membrane secrete a substance termed "secretin," which is absorbed into the blood stream and stimulates the liver and pancreas and also the glands of the intestinal walls. To this exciting substance, or "secretin," they have given the name "*hormone*," derived from a Greek word meaning to "excite." The term "hormone" has now come to be universally used to denote all such physiological substances secreted by glands which act as chemical stimuli correlating different organs; and all glands which produce such chemical substances capable of exciting, inhibiting or otherwise affecting the functions of other glandular organs and tissues are described as "hormone producing" or "internal secretory organs."

As regards the mode of production of these internal secretions we know little or nothing, except that they are products of organic metabolism. In the case of organs having both "internal" and "external" secretions, these are not necessarily or even generally elaborated from the same morphological elements. Thus, in the case of the testicle, evidence is accumulating that its internal secretion is not elaborated from the spermatozoa producing elements, but from the interstitial tissues—the so-called "Leydig's cells." The semen is the external secretion, while the internal secretion is a hormone, absorbed into the blood and affecting the body, as a whole, and establishing a chemical correlation between the different organs.

The orchitic internal secretion may continue active long after the cessation of spermatogenesis.

It may be here noted that the process by which poisonous substances (*e. g.* the toxic products of proteid metabolism) are counteracted and rendered harmless is closely related to the action of these products of internal secretion, elaborated by such organs as the liver and thyroid gland.

ACTION OF INTERNAL SECRETIONS

We have already referred to the correlating action of hormones, and have also indicated that such action may be excitory or inhibitory. It is believed by many that the inhibitory function is the predominating one, as most organs are supposed to have a superabundance of energy which requires to be kept under control. Thus defective secretion on the part of a special hormone producing gland may be followed by hyperplasia (hypertrophy) of some particular correlated organ or tissue, due to the withdrawal of the inhibitory chemical influence, while excessive secretion may be followed by corresponding hypoplasia. This is well illustrated in the case of the ovary, atrophy of which is so often followed by increased deposition of adipose tissue, as is so often seen in the case of women after the menopause. On the other hand, excessive functional activity of a hormone producing gland may produce hyperplasia and hyperfunction of the correlated organ or tissue, due to the excitory influence of the internal secretion. This is well illustrated by the frequency of cardiac hypertrophy in exophthalmic goiter—the so-called “goiter heart” of hyperthyroidism.

Again, a particular gland may produce both excitory and inhibitory hormones. The pituitary body may be cited as an example. Hypersecretion of this gland may produce the hyperplastic gigantism of acromegaly, and, at the same time, a hypoplasia (atrophy) of the sexual organs, with corresponding diminution of sexual function, *e. g.* impotence or cessation of menstruation. These considerations have induced Herring to divide hormones into two groups: (1) *assimilatory*, promoting building up of living matter, and (2) *disassimilatory*, promoting decomposition of living matter. Thus, if a disassimilatory hormone does not act efficiently, there will be excessive assimilation and consequent organic hypertrophy.

The multiplicity of action associated with the internal secretions of particular glands is strongly suggestive of the theory of multiplicity of the hormones produced by any one gland, each with its own specific action on a particular tissue. The action is thus polyvalent. There is the analogy of the vegetable internal secre-

tions, such as opium, with its several independent alkaloids. The analogy of vegetable and animal elaborations may be closer than has been hitherto suspected.

As regards the chemical composition of hormones this varies enormously. Some are the result of complicated synthetic processes, *e. g.* iodothyrim (from the thyroid gland), and may be of a very complex chemical character (*cf.* adrenalin from the suprarenal gland, which is a methylamino-alcohol of pyrocatechin); others are the simple products of decomposition.

It is also interesting to note that true hormones can produce remarkable effects even in the minutest quantities. It is for this reason that organotherapy is often so effective, because we are frequently able to supply a missing hormone. A familiar instance is the use of thyroid feeding in the treatment of myxedema.

Before leaving the question of the action of hormones, it may be stated that the "consensus partium" (the correlation of organs) is the primary function of the internal secretions. Indeed, the balance of vital forces and the sympathetic relationships existing between different parts of the organism largely depend upon the integrity of the hormone secreting ductless glands, whose main function it is to adjust the activities of the correlated organs.

As indicating the importance of internal secretions, Biedl states that it is of paramount importance in almost every department of pathology, physiology and biology. Schiefferdecker believes that the so-called trophic influence of nerves is really dependent upon the effects of internal secretion, and there are others who hold that nervous activity is itself effected by means of chemical agencies. There is probably, however, a tendency at present to rather exaggerate the importance of the rôle played by internal secretions, but at the same time it is undoubtedly true that certain hormones influence not only glandular cells and muscular structures, but also the cells of the central nervous system, while others, such as that secreted by the pancreas, specifically determine the general processes of metabolism.

In order to appreciate the doctrine of internal secretions, it will be well to glance briefly at the various methods of investigation which have so largely added to our knowledge of their functions.

The earliest information has been obtained from *general observation*. For centuries castration has been employed for the purpose of fattening cattle for slaughter, while similar adiposity in the case of eunuchs after early castration and in women after the menopause (as the result of atrophy of the ovary) were well known to the ancients. This adiposity has recently been proved to be due to

reduced metabolism of carbohydrates, consequent on the abrogated testicular and ovarian functions. Richter has estimated the reduction of metabolism after castration as amounting to 14 to 20 per cent. per kilo of the body weight.

Probably the most important method of investigation is that of *comparison of clinical symptoms with postmortem appearances*. A constant correlation between these affords valuable and definite evidence in favor of the doctrine of internal secretion. In this way has been discovered the relation of myxedema and cretinism to atrophy of the thyroid glands, of Graves's disease to hypertrophy of the thyroid glands, of acromegaly to disease of the pituitary body, and of Addison's disease to affection of the suprarenals. In the case of myxedema and Addison's disease there is hypoplasia of the thyroid and suprarenal substance with diminished functional activity, whereas in Graves's disease and acromegaly there is more or less hyperplasia and hyperfunction of the thyroid and pituitary glands.

Operative surgery has also contributed valuable additions to our knowledge of the action of internal secretions. One might specially refer to the effects of excision of diseased ovaries, testicles and thyroid glands. Removal of the ovaries is followed by cessation of menstruation and other climacteric symptoms, which may often be entirely obviated if the surgeon is able to leave even a small portion of an ovary, which may be sufficient to maintain complete anatomical and functional activity of the genital organs. Excision of the testicles in childhood may be followed later on by conditions similar to those found in eunuchs: absence of hair on face, childish soprano voice, adiposity, and phlegmatic temperament. Excision of the thyroid and parathyroids may be followed by "cachexia strumipriva" (Kocher's) and tetany.

Experimental pathology in the case of the lower animals, including excision of glands (partial or complete) and substitution (transplantation) of glands, has yielded most valuable results and cleared up many of the true facts concerning the function of internal secretions. It is to this method that we owe the great discovery that the pancreas produces an internal secretion which plays an all important part in carbohydrate metabolism, and the absence of which is the main casual factor in producing diabetes mellitus. It is to this experimental method also that we owe the discovery of the functions of the parathyroid glands. Above all, it is to this method that we owe most of our present knowledge in regard to the intimate correlation which exists between the various secretory glands. If one of a pair of organs (*e. g.* the kidney) is destroyed

or excised there occurs compensatory hypertrophy of the other. If one particular organ is destroyed or removed, compensatory hypertrophy (as the result of over activity) appears primarily in the accessory organs or tissues of a similar structure. Thus, the incision of the thyroid is followed by hypertrophy of the parathyroids, and so proving their functional corelationship. On the other hand, hypoactivity of any internal secretory organ may be followed by hypertrophy of organs of different structure. Thus excision of the thyroid may be followed by hypertrophy of the pituitary body. This is analogous to the cardiac hypertrophy accompanying the hypertrophied thymus of "*status lymphaticus*" or the hypertrophied thyroid of "Graves's disease," in which conditions the enlargement of the heart is supposed to be due to the continued overproduction of secretory substances which influence cardiac activity.

The experimental substitution and transplantation method has been specially valuable from two points of view: (1) It eliminates the supposed fallacy that the resulting changes may be due to an alteration of the nerve connections rather than to the action of internal secretions, for it is obvious that if certain characteristic symptoms and changes, which have followed excision of a gland, disappear after transplantation and reappear after a second excision of the transplanted organ, that these symptoms must be due to the influence of secretions and not to nerve influence. (2) It was the effect of transplantation of the thyroid gland in myxedema that led to the simpler method of substitution by thyroid feeding and administration of thyroid extract, acting on the assumption that the juices of the organ would probably contain the active internal secretion. In this way a scientific basis was laid for organotherapy. Similar grafting experiments have been carried out with good results in connection with the suprarenals, testicles and ovaries.

Lastly, there is the *method of studying the actual chemical and physiological properties of extracts made from internal secretory organs*. This mode of inquiry has been prosecuted experimentally in the case of animals and clinically in man in the form of organotherapy.

We have already referred to Brown-Séquard's experiments in 1889 on the effects of testicular extracts. Just as juvenility (expressed by youthful freshness and vigor—physical and mental—glossy hair, bright eyes and clear complexion) is closely related to actively functioning genital glands, so senility (expressed by senile changes in the skin, hair, teeth, muscular and nervous systems) bears a close relationship to diminished functional activity of the genital glands. Brown-Séquard was able to demonstrate in his own

person the wonderful rejuvenating effects of testicular extracts on physical strength and mental activity, and it has recently been shown that the injection of ovarian or testicular extracts may increase metabolism by 30 to 50 per cent. in hyperfunctional cases affecting the genital glands.

Stimulated by Brown-Séquard's discovery, numerous experiments have been carried out with the object of discovering the physiological activity of extracts of various other organs.

Oliver and Schäfer* in 1894 discovered the wonderful effects upon the heart and circulation produced by intravenous injection of even minute doses of adrenal extracts obtained from the chromaphyl cells of the adrenal gland. It was found that the injection of extracts of the suprarenal and pituitary glands produced a characteristic increase of blood pressure, while the extracts of all other organs and tissues, with the possible exception of the kidney, produced a fall in the blood pressure. The fact that the adrenal and pituitary glands contained pressor substances, while all other organs and tissues (particularly nervous tissues) contained depressor substances, induced Livon† to classify the glands of the body into two groups—the hypertensive and the hypotensive—according to whether the intravenous injection caused a rise or fall in the blood pressure. The smaller hypertensive group included the adrenals and the pituitary gland (and possibly also the kidney, carotid and spleen), while the hypotensive group included all the other organs—the lung, liver, pancreas, thyroid, thymus, ovary and testicle.

Schäfer and Vincent‡ found that the pituitary extracts, in addition to pressor substances, also contained in the infundibular portion of a depressor substance comparable in action to the depressor substance of brain extracts. Vincent and Sheen§ believe that many other tissues and organs yield pressor as well as depressor substances. These investigators, and also Batty Shaw,|| have found a pressor substance in the kidney, and Shaw believes that there may be some relation between these pressor effects and the autointoxication of kidney disease.

Interesting experiments have been carried out by Starling and Miss Lane-Claypon,¶ which indicate that during pregnancy an influence is exerted by the developing ovary (fetus) on the mammary glands of the mother and which acts as a stimulus to their growth.

**Journ. of Physiol.*, 1895, vol. xviii, p. 230.

†*C.R. Soc. de Biol.*, January 22 and 29, 1898.

‡*Proc. Physiol. Soc.*, 1899.

§*Ibid.*, July 5, 1902.

||*Brit. Med. Journ.*, 1906, vol. i, p. 1084.

¶*Journ. of Physiol.*, 1902, vol. xxviii.

By injecting extract made from fetuses subcutaneously into virgin rabbits a growth of mammary glands was produced, and in multiparous animals a secretion of milk. Starling and Claypon concluded that the growth of the mammary glands during pregnancy is due to the action of a specific chemical stimulus (hormone) actually produced in the fertilized ovum, the amount of this substance increasing with the growth of the fetus, and being, therefore, greatest during the latter part of pregnancy. It has thus been practically proved that the fetus while *in utero* actually arranges for the provision of its own milk supply during the first year of its extra-uterine life.

The toxic effects of subcutaneous injections of sterile organic extracts may be regarded as specific. At the same time the fact that a particular organic extract, if injected subcutaneously or intravenously, produces a characteristic effect, such as the raising of blood pressure, does not by any means prove that the internal secretion of that organ acts in a similar manner in the living body.

Organotherapy will be referred to in connection with particular glands. At this stage it may simply be recorded that extracts of the thyroid, adrenals, ovary, testicle, pituitary body, pineal body, thymus, liver, pancreas, intestine, spleen, lymphatic glands, and even the placenta, have been used in connection with various diseased processes, but in no case as yet have the therapeutic results approximated in value to the administration of thyroid extracts, the results of which gave such an impetus to organotherapy. It must not be forgotten, however, that scientific organotherapy is yet in its infancy.

The mere fact that the injection of an organic extract produces definite effects on the organism does not of itself prove that that organ produces an internal secretion. Vincent* states that the following conditions should be fulfilled before the specific action of an internal secretion can be regarded as proved. An internal secretion, he says, may be suspected when the extract of the gland invariably yields a substance with a specific physiological action, but its presence can only be definitely stated when the organ concerned consists of glandular secreting cells showing histological signs of activity (granules, etc), and when the blood which leaves the organ by its veins is found to contain the same active principles as the organ itself. He adds that to make the evidence of internal secretion complete it should be possible to recognize in the symptoms produced by extirpation the direct and reasonable effects of the absence of the active principle (internal secretion), and further to be able to remove these symptoms either by transplanting the organ in

*"Internal Secretion and the Ductless Glands."

some other part of the body or by administering the active principle in some form or other. Dr. Vincent believes that the most valuable knowledge regarding internal secretions will be obtained by a careful and methodical study of clinical conditions in association with patient investigation of pathological findings, including microscopical examination of the glandular cell contents.

THE INTERNAL SECRETIONS OF PARTICULAR ORGANS

The remainder of this lecture will be devoted to a consideration of the internal secretions of special organs, but it will be impossible to do more than refer to a few of the principal points, selected partly on account of their intrinsic interest and partly on account of their importance from the therapeutic aspect. Detailed information will be found in such text books as Biedl's work on "The Internal Secretory Organs," and that of Swale Vincent on "The Internal Secretion of the Ductless Glands." The latter gives no fewer than three thousand references dealing with the subject. Batty Shaw's handbook on "Organotherapy" is a useful compendium of information on the subject from the therapeutic aspect.

THE THYROID GLAND (AND PARATHYROIDS)

The internal secretion of the thyroid is supposed to be a dissimilatory hormone affecting the metabolic processes, cardiac activity, the sympathetic nervous system and certain correlated internal secretory organs, notably the pituitary body, the thymus, the suprarenal gland and the sexual gland. It is also believed to have an antitoxic action, particularly in regard to the poisonous products of body metabolism. The colloid substance of the thyroid is a mixture of two albuminoids—the thyroglobulins. One of these—iodothyro-globulin—forms a third to a half of the whole weight of the dried thyroid gland and is believed to be the principal active secretion. The relationship of atrophy of the thyroid gland to myxedema and cretinism has already been alluded to, while the marvelous effects of organotherapy in these conditions are too well known to require more than a passing reference. Apart from actual myxedema, many other conditions, such as asthma and premature adiposity, are often the result of thyroid or parathyroid insufficiency. That Graves's disease is intimately related to abnormality of the thyroid gland can no longer be doubted, though it has not definitely been decided whether the casual factor is a quantitatively increased secretion (hyperthyrosis), or a qualitatively altered secretion (dysthyrosis), or a combination of both. The cardiac hypertrophy can be readily explained on the theory of continued hyperfunction

of the heart, due to hyperthyroidism. That there are marked metabolic changes in Graves's disease is proved by the fact that the respiratory interchange of gases shows an increase of 15 per cent. on the amount of oxygen consumed. It is interesting to note that, although the symptom-complex of Graves's disease is in many respects the clinical opposite of that of myxedema, there are certain symptoms common to both conditions, *e. g.* the falling of the hair, abnormal pigmentation, increased salivary and lachrymal secretion, changes in sexual activity, and amenorrhea. The thyroids and parathyroids undoubtedly manufacture an internal secretion which is essential to the proper growth and normal metabolic functions of the organism, to the efficient action of the heart and to the proper development of the reproductive and nervous systems. This is borne out by a consideration of the clinical manifestations of cretinism, which are the result of arrest of thyroid function in early childhood, and which can be removed by artificially supplying the lost hormones.

THE THYMUS

The importance of the thymus gland has been realized in connection with the well known *status lymphaticus*. The part played by the thymus gland in this condition is unexplained. A much enlarged thymus has been found associated with a general hypoplastic constitution, *e. g.* small size of the heart, fragile structure of the bones (colloid degeneration of the thyroid gland), smallness of the external sexual organs (infantile uterus, narrow vagina, small ovaries), menstrual anomalies, height frequently above average, hyperplasia of lymphatic glands and lymphoid tissue, redness of the bone marrow, etc. There is supposed to be a close relationship between the thymus and the reproductive organs, the function being to prevent (inhibit) premature development of the reproductive organs. Patients suffering from *status lymphaticus* are extremely sensitive to harmful disturbances of all kinds (*e. g.* tuberculosis, nephritis, and so forth), and occasionally succumb to the influence of a general anesthetic.

THE SUPRARENALS

The principal internal secretion of the suprarenal glands, viz. adrenalin, is elaborated by the chromophile cells of the medullary portion. The striking action of the extracts even in the most minute doses in raising blood pressure is one of the most remarkable phenomena known to pharmacology. During life the secretion, no doubt, assists in maintaining the tone of muscular and other tissues.

Dixon and Brodie have localized the seat of action of adrenalin to the sympathetic terminals in the muscular fibers. The extract acts directly on the muscle wall of arteries, and the action is quite independent of any stimulation of the vasomotor center. The reduction of blood pressure in Addison's disease (due to tuberculosis and other destructive diseases of the adrenal gland) is one of the most characteristic symptoms of this malady, while the muscular asthenia may be attributed to the fact that adrenalin influences may be essential to carbohydrate metabolism, as the metabolism of glycogen is essential to the performance of muscular function. It is stated by Loeper and Cruzon that adrenalin produces reduction of the internal secretion of the pancreas. It is also believed that the cortex of the suprarenal gland yields a hormone which exerts a special antitoxic function. The cortical secretion may be responsible for the bronzing of Addison's disease, and is also believed to influence the growth and nutrition of certain tissues and glands, particularly the organs of reproduction. Certain cases of sexual precocity in quite young children were attributed to hypersecretion of the cortical hormones.

As regards organotherapy, the results of the suprarenal treatment of Addison's disease have hitherto proved most disappointing, and are in no way comparable to the value of thyroid treatment in myxedema. Richter goes so far as to say that suprarenal treatment is of no value in Addison's disease. Transplantation has, however, been carried on with some measures of success.

THE PITUITARY BODY

The anterior lobe of the pituitary body resembles the structure of the thyroid gland, and may have analogous functions. Both glands contain thyroiodine. Removal of the thyroid gland is followed by increase in size of the pituitary body. It has even been called an accessory thyroid. There appears to be a physiological relationship with the thymus and suprarenals, hypofunction of the pituitary body being associated with suprarenal hypoplasia as well as with thyroid hypoplasia. There is also a close interrelationship between the pituitary body and the reproductive organs. In pregnancy the pituitary regularly enlarges and may become hypertrophied to two or three times its normal size, and returns to normal during lactation. The enlargement is due to cessation of ovarian function during pregnancy. Atrophy of the ovary from disease is apt to be followed by pituitary hypertrophy. It has been found that experimental extirpation of the pituitary body retards the growth of young

animals and also the development of sexual activity. Complete extirpation is generally soon followed by death, preceded by a definite chain of symptoms. The principal effect of the internal secretion appears to be exerted upon the processes of metabolism and development. The rapid growth so characteristic of the period of adolescence is to be partly attributed to the functional activity of the pituitary body. Hypertrophy leads to gigantism, while hypoplasia and diminished function lead to lowering of temperature, impaired sexual functions, altered nutrition of the hair and nails, and adiposity, indicating that the pituitary body exercises an important influence on fat metabolism. Pituitary secretion also, according to Schäfer, stimulates the mammary gland and kidney. There is also a definite action on the cardiovascular system. Pituitary extract strengthens the action of the heart by influencing the heart muscle and cardiac nerves, and also raises the blood pressure by directly stimulating the neuromuscular mechanism of the blood vessels.

Schäfer has shown that the hormones which stimulate nonstriated muscle are elaborated principally in the posterior lobe of the pituitary body, and the relationship of acromegaly to pituitary disease is well known. Marie believed that acromegaly was the result of hypofunction, but Tambourini, Benda, Schäfer, and most modern observers believe it to be the result of hypersecretion.

Mayer believed that acromegaly originated in some disorder of the reproductive organs, and it is certainly a matter of common observation that sexual symptoms are generally the first to appear. In women menstruation ceases, and this is followed later on by a cessation of sexual desire and atrophy of the sexual glands. Mendel is of opinion that acromegaly results from the combined hyperfunction of several glands, including the thyroid and pituitary. The characteristic gigantism of acromegaly is definitely related to hypersecretory activity of the pituitary bodies. All giants are supposed to have changes in their pituitary bodies, and Sternberg states that 40 per cent. of giants are the subjects of acromegaly. Similarly, infantilism has been attributed in certain cases to hypofunction of the pituitary body.

As regards organotherapy, the treatment of acromegaly by pituitary extract is unsatisfactory, as is only to be expected on the theory that the disease itself is the result of hypersecretion. Thyroid treatment has been followed by better results. Sir Victor Horsley has recently suggested extirpation of the pituitary as the more rational method of treatment. Pituitrin appears to have a special action in producing uterine contraction in the later stages of pregnancy, owing to its specific action on nonstriated muscle.

THE PINEAL BODY

Descartes long ago expressed the view that the pineal gland was the seat of the soul. We now know it to be an organ with an important secretion, exercising a specific influence on metabolism and nutrition, and also profoundly affecting both physical and psychical development. There appears to be a certain degree of antagonism between the pineal gland and the pituitary body. Thus, while pituitary disease leads to atrophy of the genital organs, pineal disease has the opposite effect. Destruction of the pineal gland in children under seven years of age is accompanied by physical and mental precocity. There is premature development of the genital organs, which may approximate to the adult size in quite early childhood, and there is corresponding precocious development of the sexual instinct. There is also an abnormal growth of hair and a tendency to mental precocity. It would thus seem that in early childhood the pineal gland produces an internal secretion which inhibits the development of the sexual glands. As in pituitary disease, affections of the pineal gland may be accompanied by obesity, though it is doubtful whether this fat deposit is the result of hypo- or hypersecretion. Hypofunction from disease also induces gigantism in addition to early maturity.

THE GLANDS OF THE ALIMENTARY SYSTEM

Hemmeter* states that the total extirpation of the salivary glands in the dog brings about a marked diminution in the secretion of the gastric juice, which can be increased again by giving extracts of the glands intravenously or intraperitoneally. The salivary glands, therefore, in his opinion, furnish an internal secretion which stimulates gastric secretion.

Reference has already been made to Bayliss' and Starling's discovery that a hormone called "secretin" is formed in the duodenal mucosa, which stimulates the flow of bile and pancreatic fluid into the duodenum; there is first of all a prosecretin which is converted by the acid gastric juices into secretin. They also believe that the pancreatic secretion produces a chemical stimulus which provokes the flow of the intestinal juice in the intestinal wall.

Delezenne holds that the discharge of the bile, the pancreatic fluid and the intestinal fluid, are all effected by the same mechanism, namely, the elaboration of secretin in the intestinal mucosa after the passage into the intestine of the acid contents of the stomach.

Edkins and others believe that there is a specific hormone in re-

*"Festband der Biochem. Zeitsch.," H. J. Hamburger, Gewidmet, Berlin, 1908.

lation to gastric secretion analogous to secretin, and which might be called gastric secretin. It is believed that the first products of digestion act on the pyloric mucous membrane, and produce in this membrane a substance which is absorbed into the blood stream and carried to all the glands of the stomach, where it acts as a specific excitant of their secretory activity.

Various secretogens are now used in dyspepsia, but it is impossible at this stage to express any opinion as to their value. The pancreas secretes an internal secretion which prevents glycosuria by exerting a specific influence upon carbohydrate metabolism. The secretion is supposed to be situated in the islets of Langerhans, though this is denied by some. Rebendi believes that there is a functional relationship between the islets of Langerhans and the reproductive organs. There is an intimate relationship between diabetes and pancreatic disease. Glycosuria constantly follows excision of the pancreas, but if even one fifth of the gland is left there is no glycosuria. Total excision of the pancreas in dogs is followed by sugar in the urine in a few hours, or, at the most, a few days. Mering—the discoverer of pancreatic diabetes—believes that diabetes is due to the cessation of a specific function of the pancreas, which is essential to the normal employment of sugar in the organism. It is believed that the pancreatic hormone inhibits the formation of sugar.

THE KIDNEY

Sir Rose Bradford, in 1899, showed that striking changes in metabolism may be produced by the reduction of the renal parenchyma, and which have been confirmed by Biedl's experiments in removing wedge-shaped portions of the kidney in dogs, a procedure which is followed by breaking down of muscular and other tissues. There is also polyuria, the secretion of urine being two to five times the normal, and accompanied by increased secretion of nitrogen.

Uremia is now believed to be due to changes in the chemical composition of the blood brought about by suppression of the renal internal secretion. Brown-Séquard himself suggested this as long ago as 1889, and thought that uremia might be partly explained by an absence of normal internal secretion. He found that removal of kidneys from rabbits and guinea pigs was much more quickly followed by death than ligation of both ureters. Some authorities believe that the kidneys produce an internal secretion of pressor substances which have an effect on blood pressure.

THE GENERATIVE GLANDS

Reference has already been made to the discovery that the swell-

ing of the mammae during menstruation is due to the internal secretion of the ovaries, while the swelling of the mammae during pregnancy, when the ovary ceases to be active, is due, as was first experimentally shown by Biedl, to an internal secretion or hormone produced by the fetus itself. In proof of the fact that it is the fetus and not the ovary that produces this internal secretion, it has been found that castration of the ovary during pregnancy does not prevent the enlargement of the mammae. We have already alluded to the experiments of Lane-Clayton and Starling, whereby it was shown that the injection of fetal extract into a virgin rabbit caused increased growth of the mammary glands, while similar injections into a multiparous animal caused secretion of milk.

The causation of menstruation has always been a debatable question, but the simple fact that menstruation ceases after the cessation of ovarian activity at the menopause suggested its intimate relationship with the function of the ovary. Indeed, in the eighteenth century Sentina expressed the view that menstruation was dependent on the ovary.

Attention has also been drawn to the effects of castration as indicating the important *rôle* played by both testicles and ovaries, not only upon the anatomical characters and physiological activity of the genital organs themselves, but upon many other activities of the organism. Amongst other functions, the internal secretions of the generative organs stimulate the processes of ossification at the epiphysial cartilages, so that late maturity tends to be accompanied by increased length of the long bones with corresponding increase in height. The relationship between juvenility and active genital organs and between senility and diminished genital functions has already been noted. The genital internal secretion increases carbohydrate metabolism, and hence diminished function is accompanied by fat deposit.

Some authorities are of opinion that there is a close relationship between chlorosis and disordered genital function. Chlorosis may be the manifestation of some alteration (hypo- or hyperfunction) in the internal secretory activity of the genital glands. Even Hippocrates and Galen believed there was a close relationship between chlorosis and the functions of the ovaries. According to Wallert, there is a connection between the ovarian internal secretion and the formation of blood, and Villemin regarded chlorosis as a toxic condition, owing to the internal secretion of the *corpus luteum* becoming absorbed into the blood instead of being discharged into the menstrual flow.

As supplementing Brown-Séquard's results, Zoth and Pregel, in

1896, proved that the subcutaneous injection of testicular extract when combined with muscular exercises produced an increase of as much as 50 per cent. in the muscular performance as tested by ergographic records. It is believed that the internal secretion in the testicle plays a part in the genitovesicular reflex, which prevents a simultaneous urine discharge and semen ejaculation. The secretions of the testicle and ovaries determine the principal secondary sexual characters, such as growth of the hair on the face and of the larynx in the male at puberty. The same applies to the fighting qualities of the male, as is readily proved by a comparison of the patient ox with the fiery bull, the capon with the cock, or of the phlegmatic eunuch with the Turk.

In the testicle the internal secretion is not elaborated by the generative cells, but by the interstitial cells—the so-called “Leydig’s between-cells.” In the case of the ovary there is a divergence of opinion, but here also the interstitial cells are believed to be the active agents, though some observers hold that important internal secretions are formed in the *corpus luteum*.

The effects of the internal secretions of the female generative organs may be summarized as follows: The hormone produced by the ovary determines the proper development of the female organs and mammary glands, the process of menstruation, the secondary sexual characters, characteristic of femininity, and also affects the general metabolism of the body. On the other hand, the secretion of the *corpus luteum* may have a special influence on the nutrition of the pregnant uterus, and in providing a secretion which influences the fixation and development of the embryo in the first stages of pregnancy.

Both male and female generative glands (testicles and ovaries) have a close interrelationship with other secretory organs, particularly the thyroid, thymus and pituitary and suprarenal bodies. These relationships have already been referred to in speaking of these glands.

The prostate gland is also supposed to have an internal secretion which stimulates the testicles, and prostatic extract has been used in sexual hypochondriasis, neurasthenia and other conditions.

Organotherapy has proved of great value. Orchitic extracts have valuable tonic properties for both sexes, while ovarian extracts are particularly valuable in the treatment of the various neurasthenic and psychasthenic phenomena incidental to the menopause and certain diseases of the generative organs. It has also been found useful in chlorosis and amenorrhea. The writer has used combined ovarian and thyroid extracts with great benefit in cases of amenor-

rhea in young women associated with unusual adiposity. Judicious combinations of glandular extracts are of undoubted value in neurasthenia and psychasthenia.

RELATION OF INTERNAL SECRETIONS TO TUMOR FORMATION

A. S. F. and Helen Grünbaum* have initiated the hormone theory of cancer. These observers suggest that the excess of a particular hormone in the organism together with a lesion or irritation of the tissue may give rise to neoplastic growth. It is, indeed, conceivable that a hypersecretion acting on otherwise normal tissue might lead to the formation of neoplasm, while the relative hypersecretion resulting from insufficient absorption from an atrophied senile membrane might account for slow growing tumors. The Grünbaums inoculated previously refractory rats with pieces of glandular organs from known susceptible organs along with sarcoma, and in two experiments the result seemed to show that the carotid gland is able to assist sarcoma growth in rats otherwise insusceptible.

Ehrlich† thinks there may be substances circulating in the organism which may stimulate the body cells to resist the "arthreptic influence" of cancer cells.

Askanazy‡ believes that certain hypoplasias of the genital organs following the formation of tumors in the ovary, testicles, or pineal body may be due to the influence of embryonal tissue formed by the tumor.

It is well known that skin moles, particularly if of some size and hairy, may become cancerous or may have been present in persons who have been attacked by cancer. It is also known that there is a close relationship between ovarian degeneration and the occurrence of hair on the face of women. May it not be that the frequency of cancer in women immediately after the menopause is due to the degeneration of the ovary which we know occurs at that time, and may it not be possible that the injection or administration of ovarian extract for some time after the menopause might be of value in averting cancer? Recently the writer had under his care a case of well marked cancer of the breast in a girl, aged twenty-eight years, who six months before the formation of the cancer developed a thick growth of hair on the cheek, chin, and upper lip, associated with partial amenorrhea. Much patient clinical and ex-

**Journ. of Path. and Bact.*, 1911, vol. xv, p. 289.

†*Beitrage z. Exp. Pathol. u. Chemoth*, Leipzig, 1909.

‡*Zeitschrift f. Krebsf.*, 1910, xi, p. 397.

perimental investigation is necessary before coming to any definite conclusions as to the existence of a definite relationship between neoplastic formation—simple or malignant—and altered function of the internal secretory organs. The subject, however, is a fascinating one, and research along such lines may be productive of results of the highest value and importance.

DETECTION AND TREATMENT OF NEUROLOGICAL PHENOMENA PRECEDING ARTERIOSCLEROSIS—ILLUSTRATED BY CASES AND SOME ERRORS

BY TOM A. WILLIAMS, M.B., C.M., EDIN.

Corres. Memb. Soc. of Neurol. and Psychol. of Paris;

Neurologist to Epiphany Free Dispensary

Washington, D. C.

- I. "NEURASTHENIA" AS SYMPTOMATIC OF TOXICOSIS, CAUSING ARTERIAL CHANGES WITHOUT VERY HIGH BLOOD PRESSURE.
- II. THE DIAGNOSIS OF THIS STATE BY THE NEUROLOGICAL SYMPTOMS AND SIGNS.
- III. CASES—(1) SCLEROGENIC TOXICOSIS, PRODUCING FOCAL EPILEPSY;
(2) INCIPIENT PRESENILE MELANCHOLIA;
(3) METABOLIC PSYCHASTHENIA.
- IV. DIET MOST IMPORTANT ELEMENT OF SUCCESSFUL TREATMENT.

It has been said that the recognizable symptoms of arteriosclerosis show themselves only when the disease can no longer be detected; but it would be more accurate to say that they are not usually diagnosed until too late for a return to normal; for by their effects on the nervous system, both central and peripheral, that toxic and circulatory disturbances which precede sclerosis of the blood vessels are often manifest long before there is definite hardening of the vessel walls or much elevation of the vascular tension. The condition of the patient is then easily remediable, but it often, unfortunately, escapes the physician on account of a too ready diagnosis of neurasthenia or hysteria, for which rest, anodynes or psychotherapy are prescribed, without an attempt to reach the real cause of ill health.

Again, there is an all too common tendency, when one finds the blood pressure above 120 in the middle aged, to minimize its significance, especially if other disease is present, in the belief that such elevation, because not uncommon, is a norm. Hence proper treatment is neglected, and a valuable opportunity lost.

Whether persistent high blood pressure is itself the cause of arteriosclerosis, or whether it is only another effect of toxicosis, which degenerates the arteries, is still a problem.

We now know that sclerosis of the arteries occurs in some subjects without a marked rise of blood pressure (Councilman). It is in those cases that we have to rely upon other signs for a diagnosis, more especially when nephritis has not occurred. It is in the nervous system that these reveal themselves earliest; and it is unfortunate that sclerogenetic toxic states are so often overlooked by physicians on account of the facility with which it has been the habit to label "neurasthenia," the varying symptoms in the causation of which circumscribed lesions of the nervous system can be excluded.

It needs to be reiterated that there is no nosological entity neurasthenia, which is only a rather loose name for a clinical condition attributable to some definite cause or causes, generally intoxicative, such as hypo or hyperthyroidism, deficiency of the adrenals, incipient Bright's disease, disturbances of the digestive organs, tuberculosis, syphilis, pellagra, or other chronic infections, animal parasites, a poor, badly balanced or excessive diet, or the imbibing of exogenous toxins, and, lastly, mental worry and unhappiness, which act indirectly by perverting metabolism, and thus producing the toxicosis which determines neurasthenia.

It is the doctor's business to find out the causes in each case, and to remedy them. In searching for these, the general practitioner may require the aid of specialists. This is particularly so where the nervous system is affected, for I am sorry to say that neurological technique has been acquired up to the present by very few of the busy men who pursue general or special practice. In illustration of these statements are reported the following cases, where the gravity of the symptoms led to an early consultation, which enabled proper treatment to be instituted in time, so that good health was quickly restored:

Case I.—A man of sixtyfour, chief architect in the Indian Service, consulted me February 10, 1910, having been sent by Dr. Phillip Roy, because of the recent occurrence of epileptiform convulsions with loss of consciousness.

The first attack had occurred in May, 1909, at an elevation of twelve thousand feet, near Durango, while he was inspecting the school buildings there. He was unconscious for half an hour. The second attack occurred shortly after, upon leaving the train in Chicago, while making for the staircase. It lasted about an hour. A third attack took place that July in his office, lasting one and a

half hours. The fourth, and last, had occurred two nights before his visit to me, while he was visiting a friend and sitting down. It lasted three hours.

The attacks are preceded by a creeping sensation in the left upper arm, passing slowly down to the hand, which becomes numb. In about fifteen minutes unconsciousness supervenes. The face is said to be flushed, but he is uncertain whether there are convulsions, though others have told him that there are. The duration of the attacks was only surmised.

Previous History.—Scarlet fever at six, without bad sequelae. An active living, healthy man, except for two years of asthma twentyfive years before, a result of constant attacks of catarrh. It was cured by working as a farmhand for three weeks. He smokes two cigars and a pipe a day. He took coffee, and was a heavy drinker, until after the attack; now he has ceased to take even tea. He has always been abstemious in eating, but has been fond of salty foods. He drank "when he felt like it." Since these attacks he has had a pain over the forehead when coryza occurred. As he had read that insanity might come on from this catarrh, he was at first a little anxious about his state, but soon steeled himself against it. The pain in the head was rather a feeling of depression and a grumbling pain, like that of catarrh. The discharge was slight, and the headache disappeared when it ceased. He used to sleep quite well, but about the time of his attacks began waking in the early morning, and could not fall asleep again. This persisted. He had been recommended to eat more and to take fat meat, and this he has done.

PHYSICAL EXAMINATION

Reflexes.—Knee kick, R. > L. Achilles reflex, R. > L. Triceps, L. > R. Radials equal. None markedly exaggerated. Plantar reflex is flexor. The left cremaster is absent.

Sensibility.—No abnormality in lower limbs to pain, touch, temperature nor attitudes, though the latter are sometimes wrongly named, but correctly recognized. Arms, perfect localization of light touches, both segmentally and axillary. Spacing sense of fingers normal. Other modalities normal, except sense of attitudes poor, especially in the left hand. No hemiopia or color inversion of visual fields.

Motility.—Normal, but left fingers weaker than right. Diodocokinesis regular. Pupils contract promptly.

Psychic Functions.—He thinks his memory is weakened since the attacks. There are no disorders of speech. Emotionally, he has

always been easily excited when there was a cause, and has been accustomed to occasional sadness.

Diagnosis.—The localization of the aura in the left arm and hand, along with the increase of the triceps reflex and the loss of the cremasteric, point to an organic perturbation of the sensori motor area of the right hemisphere, probably mainly in or near the cortex of the central fissure, opposite the second frontal convolution. The cremaster governing fibers are, of course, attacked in some other situation.

As neoplasm and granuloma were each unlikely, and as the man's age is that of arteriosclerosis, of the state preceding which the recently acquired matutinal insomnia was indicative, I believed it wise, although lacking proof, to adopt the supposition of sclerogenetic toxicosis, and put it to the experimental proof of therapeutics. Accordingly, a diet light in proteins was ordered, and coffee and tobacco were forbidden. The result was confirmatory, as the patient, one year from the consultation, remains free from attacks and insomnia, and is perfectly well able to perform his very strenuous work, often in high altitudes.

I believe that the first attack was inaugurated in consequence of an ischemia of a part of the right Rolandic region, due to the heart, strained by the high altitude, not being able to keep full of blood a partially sclerosed vessel distributed to that area. The second attack was likewise due to a sudden demand upon the heart upon leaving the train after a very hot journey.

The cases which follow are set down to illustrate some common types of error.

TOO READY DIAGNOSIS OF A PSYCHOSES

Although the nervous symptoms of arteriosclerosis are well known, and even the warnings of its onset are often described, yet the condition is frequently overlooked on account of the unfortunate readiness of a diagnosis of hysteria, neuropathy, nervousness, melancholia, breakdown, or other vaguely conceived conditions. Besides, the symptoms are far from pathognomonic; and to a person unversed in psychopathology they are easily confused with a psychogenetic disorder. This is especially the case when, as frequently occurs, they vary from day to day, and more especially when the variation appears to correspond with apparent causes of depression and excitement. The physician is often too apt to accept, without analysis, the statements of the friends regarding the connection of cause and effect respecting this. The following case, which I have already reported, illustrates the avoidance of this fallacy:

Case I.—A physician of sixtyeight was referred by Dr. A. E. Balloch, after a year's grief and worry. He slept badly, had paresthesia in his hands, feet and hearing organs. He took narcotics in increasing amounts. He lost weight and power of endurance. His optimism was replaced by dullness or distress, by turns; and he wept much over his griefs. No objective changes of reactions of nervous system were revealed by examination. The tension was 160 mm. But sclerogenetic toxicosis was diagnosed from the matutinal nature of the insomnia, the paraesthesia without sensory changes and the loss of endurance. A diet low in proteins and purins led to disappearance of unpleasant symptoms. He remains well three years later.

VARIABILITY OF PSYCHIC INFLUENCES

A further cause of the error of interpreting as psychogenetic those cerebral symptoms due to chronic vascular disorder is their frequent amenability to psychotherapy, for a time at least. A depression or a vagary often disappears for a time as a result of the stimulus of medical exhortation. That his therapeutic success is not uniform in a particular case is apt to be attributed by the physician to his own lack of psychotherapeutic skill, so that he continues to persist in his erroneous diagnosis in spite of the failure of what he believes to be correct treatment.

Case II.—Illustration of the liability to this error on the part of friends, and even of the physician, is the case of a well known financier referred to me by Dr. Z. Sowers. In this case, severe periodic attacks of depression during the whole life of the patient and their resemblance to melancholia marked the diagnosis. For instance, the patient believed that all his friends knew that he was down and out; he had ideas of reference regarding his financial affairs, and he thought he would leave his family in poverty; and ideas of self depreciation about his ability and acts made him miserable. On examination, I found the speech slow and slurring, reflexes normal, the heart beat was heavy, slow, and the second beat was accentuated. The systolic blood pressure was 100 and the diastolic 130. The urine was normal. I found that his consumption of protein was most excessive; but he had ceased smoking some weeks before.

With appropriate treatment the systolic blood pressure became 157 and the diastolic blood pressure 85. He recommenced business, became cheerful, and perhaps even too optimistic.

Although certainly of cyclothymic constitution, this patient had his condition much aggravated by the excess of pressor substances in his blood, formation of which was soon prevented by proper diet, which he had never been prescribed during numerous peregrinations to various health resorts.

ERROR OF INADEQUATE TREATMENT

Case III.—An illustration of the need of more radical treatment in some cases is the case of a Congressman, aged fifty seven, referred, March 19, 1912, to me by a well known Washington physician. His complaint was dizziness and trembling on walking. However, these symptoms had first occurred on his graduation, and again fifteen years before I saw him. On each occasion he recovered by means of physical labor on a farm. They have occurred from time to time since. Being advised that they might be due to an error of refraction, he saw Dr. Wilmer, who gave him prisms, exercises, without benefit. The vertigo so alarmed him that latterly he never went out unaccompanied.

Intercoastal neuralgia had troubled him, especially when tired; and troublesome constipation caused him to take purgatives daily. The physician who sent him to me had recommended a course of baths; but these did not remove the symptoms, which, however, were always relieved by a hot bath and by whiskey. He was a very hearty eater and an excessive smoker.

Examination showed only some exaggeration of the deep reflexes, failure of the right plantar, abdominal and cremasteric cutaneous reflexes. The motility was normal, except for a slight lack of firmness in the gait. Sensibility was normal, and the pupils reacted and converged well. The heart sounds were clear, the second being somewhat accentuated. The systolic blood pressure, which a year before had been 190, had been reduced, under the care of the physician who referred him to 160 when I examined him. He exuded an unpleasant odor of sour tobacco. Psychically he felt dull, as a rule, but worried much and felt very restless at times, especially after exertion.

The diagnosis was toxicotic hypertension. The prognosis was good. The treatment consisted of the limitation of tobacco to three cigars a day, cure of the constipation by special diet, removal of the toxic condition by this special diet, aided by a course of baths to favor cutaneous action, and exercise in moderation to increase metabolism.

As a result, by April 18th the systolic blood pressure was 130, and he was rarely dizzy. A favorable result, however, caused him to exceed dietetically once or twice, so by April 25th several dizzy attacks had occurred. The blood pressure, however, was only 124 that day I saw him. The instructions were emphasized, so that by June 2d, with blood pressure 122, there had been no vertigo. On June 23d, blood pressure 124, constipation induced vertigo again; and it occurred once more on July 11th as a result of oversmoking (blood pressure was only 120 when I saw him).

His complexion had improved, his eye become clearer, the accentuation of the second cardiac sound had disappeared, and he was able to perform his duties like a normal person. He remains well November 1st, thanks to an intelligent and earnest wife, who sees to his diet. This patient remains well January, 1914.

THE ERROR OF EXACTING TOO MUCH OF A PATIENT

One hears of complaints of patients that a regimen is a greater trouble than their disease. Many doctors complain, too, that patients will not follow instructions. The fact that these difficulties have not troubled me I attribute to the practice of utilizing the co-operation of the patient in planning the regimen. He then becomes interested in carrying out that which he believes is his own arrangement, and has a certain pride in doing well. In one of my cases this attitude of mind caused the patient to believe that I had played no part in his cure, and hence to be much offended when remuneration was demanded. The art which conceals art, while medically invaluable, left something to be desired in this case.

Case IV.—Metabolic Psychasthenia. An engineer of thirtyeight, referred by Dr. Atkinson; powerful, energetic man, formerly accustomed to active work, had been for months unable to concentrate upon the office work to which he had confined himself for over three months. Previous to this he had been much less active, and latterly he had been very much worried by an official inquiry into a contract for which he had been mainly responsible. For no cause known to him, he feels a dread in the mornings, and an indecision in business matters is now realized to have been present several months. There was no syphilis, nor any other organic disease.

He had been improved by three weeks in the woods, during which he was very somnolent, but relapsed at once upon return, and could hardly stand his morning suffering. There was no insomnia.

Physical Examination. The reflexes were rather active, but there was no other objective change in the lower neurones; there was no amnesia; the sexual hygienic was normal. He was much depressed, and longed to go away from it all for a year, which he could well afford to do.

Treatment. He was sent for three weeks into the mountains. This time he fully recovered, on account of the light diet which he took. Breakfast and supper were fruit and milk, and his midday dinner was vegetables and six ounces of meat; after a few days cereals were added morning and night.

ORGANIC SYMPTOMS MUST BE DISTINGUISHED FROM FUNCTIONAL

In appraising the cerebral symptoms, one of the difficulties, and a frequent source of error, is the distinction between symptoms and signs due to the effects of actual sclerosis of the vessels, and the symptoms and signs of the conditions which favor sclerosis, including the causes which produce hypertension within the vessels. A means of distinguishing between these two groups is afforded by the comparison of symptoms during and between periods of high blood pressure. The case of the Congressman just described clearly showed that his symptoms were not accounted for by sclerosis of vessels, for they disappeared when detoxication was produced by treatment. Furthermore, any considerable degree of sclerosis of vessels supplying the central nervous system leads to loss of function of a portion of the white and gray matter, usually ascertainable clinically by quantitative methods of examination of the reflexes, cerebellar function, motility, sensibility, intelligence and affectivity.

THE DIET IN ARTERIOSCLEROSIS AND NEURASTHENIA OF THE CLIMACTERIC

To prevent the formation of toxins is both easier and more effective than to eliminate them when formed; although, of course, this can be done by stimulating the emunctories of the skin by baths, of the bowel by purgatives, of the kidney by diuretics, or of the lung by active exercise, or of the whole organism by electricity. The suppression of the effects of toxins by counteracting substances, such as the nitrites or iodides, is still less desirable; and no condemnation is too great for the masking of the warning symptoms by means of sedatives, such as bromides or hypnotics, and narcotics, such as chloral, morphine, alcohol, or the synthetic drugs. Another measure to be reprehended is the whipping up of the body reactions by means of the strychnine or caffeine groups of alkaloids.

As the patient's ill health is due to his inability to metabolize the excess of protein which he had formerly taken with relative impunity, the indication is to see that he takes only the physiological amount, which for a person past midlife should not exceed fifty grams per day. At the same time, calories must not be deficient. In the third place, the vegetable salts must be supplied in sufficient amount for free secretory and excretory activity.

I give a sketch of a diet, which, of course, must be varied to suit individual cases :

While dressing, five to ten ounces of hot water, containing ten to twenty grains of either sodium sulphate, potassium citrate, sodium phosphate, or similar alkaline saline, according to the nature of the case. Half an hour later, breakfast of a large plate of fruit, and milk or cream, followed by abundant cereal and milk, with bread and butter. No meat, eggs or fish. Wait five hours. Dinner, not more than four ounces of meat or fish, which must be quite fresh, a *very large* plate of green vegetables, potatoes sparingly, and preferably nothing more than perhaps a taste of sweets. The evening meal, five hours later, may be a repetition of the breakfast, but succulent vegetables may replace the fruit, and macaroni or a similar dish may be substituted for the cereal. Thirst and hunger between whiles may be satisfied by water and fruit about one hour before a meal or during the night. The purins are avoided, so that meat juices are abstained from, and soup, which may be taken at dinner or supper, must be made entirely of vegetable food. Alcohol is forbidden, even as beer or wine. Tea, coffee, cocoa and kola must be abstained from, as, besides being closely allied to the xanthin bodies, they are toxic to the nervous and circulatory systems.

Gradually this diet is added to, an occasional egg being given at breakfast or supper, and the patient very soon learns what suits him best. Some culinary ingenuity is needed to give variety to a diet which at first appears monotonous. In this respect, the tastiness of well prepared whole wheat bread is a great gain.

Gentle and regular *exercise* twice daily is a great aid to healthy metabolism, and proper calmative *baths* are most beneficial. Of course, proper *psychotherapy*, to allay the patient's alarm, is of great importance, besides which it teaches him the real status of his health and provides him with the means of counteracting his mental depression by the knowledge that it has a physical source and will pass away as this improves. Sometimes the morbid depressive ideas are somewhat fixed, and they must then be met by frequent, rational persuasion to readjust the patient's point of view. The effect of a change of environment is often only temporary, unless it is not made merely empirically. If it is made part of a psychological reconstruction and guided by the physician, it should, however, help, rather than hinder, the resumption of work, even in an unsatisfactory environment.

THE DEFENSIVE FERMENTS OF ABDERHALDEN

THEIR IMPORTANCE IN PSYCHIATRY

BY BAYARD HOLMES, M.D.

Chicago

Few discoveries have promised more than the recent work of Abderhalden on the formation of defensive ferments in the animal body. It has long been known that the organism reacts to organic poisons in a specific way for each poison. (Bordet and Gengou.) Abderhalden learned by experiments on animals that each of the tissues of an animal furnished a cell albumin that acted (when dead) as a poison and aroused in the organism an enzyme or ferment that "tore down" the nonexcretable colloid albumin, and produced a dialyzable peptone that could be excreted by the kidneys, the liver and the intestines. He demonstrated, moreover, that the ferment thus produced in the blood could accomplish the same "tearing down" process upon the albumin in the test tube, and he contrived two different ways of recognizing this fact, one of which is now in common use.

The little book* of 110 pages in which he announced this discovery was published early in 1912, but attracted little attention among medical men until the further publication in a medical journal† of the application of the method to the diagnosis of pregnancy. Since that time the method has commanded the interest of medical men and obstetricians throughout the world, and more than a hundred articles have already appeared upon the subject as related to the diagnosis of pregnancy.

The method of the complement fixation had been tried by psychiatrists in unsuccessful attempts to differentiate the insanities from one another. As soon as the Abderhalden optical and dialyzing methods were made public, Fauser, of Stuttgart, acquainted himself with the technic and began to study the reactions in the exophthalmias, the insane and in epileptics.

This reaction is obviously adapted to disclose the anatomic parts of the body that are undergoing degenerative processes, and throwing out into the circulation the waste cell albumin which arouses the development of the "defensive ferment." If in insanity the

*Abderhalden, Emil: "Schutzfermente des Tierischen Organismus. Berlin, 1912. (Third Edition, entitled "Abwehrfermente des Tierischen Organismus." December, 1913.) 8vo, p. 228, price \$2.00.

†Abderhalden, Emil: "Diagnose der Schwangerschaft mit Hilfe der Optischen Methode und Dialyseverfahrens. *Münch. med. Wochenschr.*, 1912, No. 24, June 11, Vol. 59, p. 1305.

brain cortex is destroyed, then the ferment in the serum of the blood of that patient will peptonize albumin taken from human brain cortex. Fauser, in his search for the locations of the lesions of the various insanities, prepared these albumins (or antigen like bodies) from each of the glands and organs of the body, from brain cortex, from hypophysis, from liver, from the pancreas, from the spleen, from the thymus, from the thyroid, from the prostate, from the testicle, from the ovary, from the muscle, from the nerves, from the cord, and even from the bone marrow. These albumins were secured by crushing the absolutely bloodfree organ in a mortar, washing, boiling, settling and decanting, and the resulting fundament kept in stock in the cold. When the tests were to be made, a series of well tried dialyzing thimbles were filled with these albumins or fundaments and placed over water, to which ninhydrin solution had been added. They each received a measured quantity of the blood-serum of the patient to be tested. Another series was required for a healthy control, and still another for the second patient. Thus each test in the beginning, while the field was new, required a great many dialyzing tubes.

These tubes were then set in the incubator at the temperature of the body and observed at intervals of six hours. If one of the albumins was peptonized, the peptone passed through the dialyzer and the ninhydrin solution below became a bright violet color.

To be brief, the most remarkable results on completing the first work was published by Fauser on December 29, 1912, at the conclusion of several thousand tests on threescore patients and necessary controls. In all this work Fauser had the helpful guidance and cooperation of Abderhalden himself. The completed work and a review of the work of others was published in the September 6th number of the *Münch. med. Wochenschr.*, p. 1984. The results have been most remarkable and may be summarized as follows:

1. The hysterias and manic depressive insanities show no organic destruction of any part of the body—no defensive ferments have been recognized in these cases.

2. The dementia precox group show uniformly a destruction going on in the genital glands, and often also in the thyroid, the adrenal and the brain cortex. The thymus always has its defensive ferment present, and this acts as a control in all tests, whatever the disease.

3. Epilepsy shows a defensive ferment with great uniformity for brain cortex. The chart is otherwise spotted by more than a normal number of other foci of degeneration.

4. General paresis, besides the Wassermann, the *goldsol* and the

Nonne tests, responds to the Abderhalden by showing early a defensive ferment against cerebellum and brain cortex, and later to other ferments for nearly any organ in the body (Theobald).

5. The alcoholic psychoses show many defensive ferments, especially from brain cortex, from nerve tissue and from liver substance, both the right and the left lobe.

For the first time in medical progress, then, we have an experimental and laboratory method of distinguishing mental diseases from one another. It is no longer necessary to take the opinion of the alienist, unsupported by physical demonstration, as a criterion to send a delinquent to the penitentiary or to the state hospital for the insane. It is no longer possible for the "mind curer," the Christian Scientist and the Freudian to tell us unchallenged that the dementia precox patient is suffering simply of a "twisted idea." The dementia precox patient is sick, and the defensive ferment against the testicle (if a male), or against the ovary (if a female), clinches the diagnosis and demonstrates a "dysfunction" of the genital glands.

In a matter of such novelty it is necessary to be cautious and yet judicial. This method was put forth in the spring of 1912, without any ostentation. The first practical application of the diagnostic method was in pregnancy. While on the border, theoretically, of the field of usefulness of the test, it has become a well established procedure. The application of the method to psychiatry, the most pessimistic department of internal medicine, has aroused that department, among German speaking people, to an unusual activity. For a wonder, the surgeons have failed to grasp the possibilities of the test, except in the diagnosis of carcinoma. It is more than likely that it will be possible now, by this method, not only to separate carcinoma from sarcoma, but also to determine species of carcinoma, especially hypernephromes and hypophyseal tumors. Wherever the carcinoma or other tumor is located, these tissues are destroyed, and defensive ferments are aroused against these albumins. Thus, if an adrenal tumor is located in the lung, the defensive ferment that peptonizes lung albumin will also be developed, and a single series of tests, in which the serum of the blood of that patient is added to fundamentals or albumins—for example, from carcinoma, hypernephroma and sarcoma—and also to a number of anatomic tissue albumins (such as liver, spleen, lung, kidney, testicle and brain cortex), will show, by peptonizing hypernephroma albumin and lung albumin, only both the pathology and anatomy of the condition. Abscesses of the brain, tumors of the brain and other brain lesions are likely to be diagnosed by this method. In instances of

abscess and tumor it is as important to exclude disease of one organ (or even of all other organs) when an accessible pathologic entity has been demonstrated by palpation or other diagnostic means, and it is just in this exclusive diagnostic possibility that this test is most fascinatingly promising.

PREPUCE OR NO PREPUCE

BY WILLIAM J. ROBINSON, M.D.

New York

In the January issue of *THE AMERICAN PRACTITIONER* there appears an interesting article entitled "The Rôle of the Prepuce in Disease," by Dr. Gustav F. Boehm, Jr. When one starts out to prove a thesis he can generally prove it, to his own satisfaction at least. All it is necessary to do is to overlook or minimize the importance of the facts contradicting the thesis and to emphasize the importance of those facts which seem to favor it. Of course, I do not mean to imply for a moment that Dr. Boehm deliberately adopted such tactics, but there is a certain kind of unconscious bias, against which one is frequently powerless.

It is quite possible that, from a neurologist's point of view, the prepuce plays no rôle in the causation of disease, and had he stopped there I would have nothing to say—which, however, does not mean that I would agree with him. But when he denies the rôle of the prepuce in the incidence of venereal diseases, then he is treading on dangerous ground. A venereologist would have to be blind indeed to deny the importance of the prepuce in regard to the greater frequency of venereal morbidity, complications and greater resistance of the venereal diseases to treatment.

Whoever, for instance, has had to treat chancroids in an open coronary sulcus and chancroids behind a narrow prepuce will not need to be convinced that the prepuce is a nuisance. Nor can any one deny the greater difficulty of treating a chancre underneath the prepuce. Nor will any one deny that phimosis, and occasionally paraphimosis, may become a most formidable complication of either chancroid, chancre or gonorrhea. And when one thinks that both phimosis and paraphimosis are entirely obviated where the prepuce is nonexistent, one needs no further arguments. The elimination of two disagreeable and at times dangerous complications is sufficient to make us all believe in circumcision.

From individual cases we can pass over to entire races. Why is

it that the Jews suffer with syphilis so much less frequently than any other race? All statistics are agreed on this point. The most carefully compiled statistics by Dr. Richard C. Cabot from the Boston City Hospital, the Massachusetts General Hospital and the Long Island Hospital, comprising a total of 611,733 cases, shows this beyond any possibility of doubt. The incidence of syphilis in Jews, in proportion to population, is only about *one third* that of other races. Some explain it by the superior sexual morality of the Jews. This is partially true, but it does not fully explain the matter, for if it did we would find the same lower incidence in reference to gonorrhea, which is not the case.

The author says, further, that the prepuce is necessary, to a certain extent, in order that we may be fruitful. To this it is only necessary to say that the nation that has been circumcised for centuries is the fruitful nation *par excellence*. So the prepuce does not seem to be necessary to either "stimulate" or "assist in" the sexual act.

He also says that "the prepuce protects the delicate epidermis of the glans from injury; it prevents continual irritation of the genital corpuscles." Just the contrary is the fact. We do not see cases of balanoposthitis in circumcised people; we do see them quite frequently in uncircumcised.

Many other points could be brought to show the weakness of Dr. Boehm's position, but these ought to suffice to prove that his advice, "Leave the prepuce alone," is not the best that could be given.

As to his statement that Nature put the prepuce there and Nature makes few mistakes, it is sufficient to say that evolutionary biologists have long ceased to worship the fetich of Nature. Nature does make mistakes. In fact, he says himself that Nature "makes few errors." If she makes few, why cannot this be one of them? In my opinion, it certainly is.

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JOHN W. WAINWRIGHT, M.D., EDITOR

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EDITORIALS

SOME DAY—A MIDNIGHT REVERIE

Some day—the day of longings satisfied, of hopes realized, of ambitions gratified. Some day—the day when truth will prevail and error will cease to exist; when man will have faith in his brother and woman will believe her sister; when the child will not need to curse its begetter for its stigma of shame; when the father will not deny the child whose mother bore no guilt emblem of propriety upon the second finger of her left hand; when the universal conscience will decree that justice shall raise and exalt, not crush and destroy. Some day—when all will live in unison with each other, in harmony with the universe and its unalterable laws; when peace on earth, good will to men, will be real in the spirit and not a beautiful fancy. Some day—the day to come, be it the morrow or when the soul that moves the heart to beat and the brain to know leaves us as light leaves the candle which has been snuffed, and this mass of flesh and bone, brain and sinew becomes food for hungry worms or matter to follow the laws of chemical decomposition; or perhaps when today is reckoned in future ages, our mightiest efforts and our grandest deeds may become a study for wise men who want to know: what cheer, what promise in that some day, the red letter day of our lives or of eternity!

He who looks forward cares not to look back. Like to him who has crossed the river Lethe, the past is oblivion. If he looks beyond

the six feet of earth and the marble slab that is destined to bear his name, to him is opened a vista, illimitable in its width, eternal in its length, glorious in its height, and filled with the wondrous works of man. And whether it be with the infinite intelligence that the great scientist tells us survives the grave, or whether it be with the eyes of the dreamer whose vision has no bounds, the view is the same; the same some day, the same man's mastery of time, of space, of life, of self. That some day man will learn the truth and then—*nirvana*.

RADIUM AS A CANCER CURE

There is no lack of information concerning radium as a cancer cure. Medical, scientific, semiscientific, pseudoscientific, the secular and lay press are all anxious to publish anything said or written about its marvelous cures, while there is no dearth of material. Men eminent in surgery are positive as to its curative effects; space writers are everywhere in evidence to testify to miraculous cures. Even our august senators must needs appoint a committee to look into the question and summon scientific expert testimony, which is sent broadcast to every city, town and village, to be read and pondered over by persons in all walks of life. And to what end? Is not this widespread propaganda to result in serious disappointment? Are we not fostering what must necessarily prove harmful—for what percentage of those suffering from cancer can avail themselves of the use of radium? Even grant the truth of the claims made for its curative effects, but an infinitesimal number of sufferers from this dreaded disease can ever be treated with it. Are we not raising false hopes and dooming large numbers to cruel disappointment, as followed the Friedmans' fiasco? And such is the mad haste with which we rush into the maelstrom of promised cures that he who is conservative, waits experimental proof of real and enduring cures, who patiently labors in a restricted field for evidence based upon scientific findings reinforced by a sufficient time to confirm his work before heralding his assurances, must be frowned upon by the medical profession, as well as pronounced an unbeliever—one fastened to the apron strings of tradition.

That there is undoubted merit in radium as a curative agent in superficial malignant growths, such as epithelioma, is susceptible of proof, as is shown in reports of eminent men with a large experience. The same evidence is shown by the removal of such growths through operative surgery. And yet metastases or recurrences are not infrequent even after radical surgical procedures. But these do not, should not, deter the surgeon; and the same indomitable spirit to conquer should possess both physician and surgeon to persist with radium or any other treatment founded upon sane, scientific principles. We should not abandon any line of treatment, particularly for that of cancer, if we secure a reasonable percentage of cures, or even temporary benefit; but let us not now lead sufferers from this cruel complaint to the belief that all are cured upon whom it is used; that miracles are performed by radium, or otherwise, in cancer or other complaints.

THE WISCONSIN EUGENIC LAW DECLARED UNCONSTITUTIONAL

A test case was recently made in the local court on the constitutionality of the so called eugenic law of Wisconsin. The court declared against the law, but the case has been appealed to the Supreme Court of the State for final decision. We learn that a marriage license was refused because the applicant did not have a certificate of medical examination. As above stated, the case was appealed, when the trial judge, in handing down his decision, declared, in part, as follows:

"The law is praised because of its movement toward suppression of venereal diseases, but is condemned because its enforcement is practically an impossibility.

"The court holds that if the State wishes to exercise its (a) right for preventing undesirables from marriage, it should assume the burden of weeding out the unfit, and thereby not cast upon the fit an unfair demand, and thus materially impair an inalienable right.

"The prayer of the plaintiff, that the law is class legislation by demanding tests from men only, is refused. The court declares that this is a legislative right. He also overrules the objection to the

clause in the law which provides that all examining physicians must be thirty years old or older, because that feature of the law does not affect the rights of the petitioner."

Only recently a similar law enacted by the State of New Jersey has been declared unconstitutional by the highest court, the Supreme Court of that State, while doubts are expressed in the States of Pennsylvania and Indiana that similar laws of recent enactment in those States will stand a court decision.

It is believed that all such laws enacted in the several States have been drawn without due regard to the inalienable right of the individual guaranteed by the framers of the U. S. Constitution—and, besides, who is qualified morally, mentally or physically to sit in judgment upon his fellowmen? Would it not follow that the judge might sooner or later come before the bar of justice for trial of impeachment? It is true that our courts of justice are usually above reproach in trial cases, but could such courts be compared to a commission, or perhaps an individual delegated or empowered to pass sentence that would exclude man or woman from a natural right by mutilation or the right to choose a consort? We have a plethora of laws for civil and criminal derelicts—in the case of criminals, segregation. And even in these cases we have the court of appeal. Similar laws should be enacted for the segregation of the insane, feeble minded, epileptics, State care of those suffering from venereal diseases. If these diseases were made notifiable and proper treatment furnished, could not many of them be cured and again become desirable citizens?

THE PROLONGATION OF LIFE

We commented recently on the increase which has taken place in the mortality at the higher age groups. A consideration of the problem thus presented led Dr. Herman M. Biggs, more than five years ago, to advocate the regular medical examination of persons over fortyfive years of age. Dr. Biggs suggested that when that age was reached an individual should place himself entirely in the hands of a competent medical adviser, consult him at regular intervals, and so learn how to prevent many of the degenerative

changes which give rise to this increased mortality. It is gratifying to observe from the *Bulletin, Department of Health, New York City*, that his suggestion has borne fruit. Under date of December 30th, there is announced the formation of a unique corporation, namely, "A Life Extension Institute," the express purpose of which is to perform the services just mentioned, and so to lengthen human life by the application of modern science. The method to be used is very simple, and is similar to that which is applied to ordinary machinery, namely, inspection and repairs. After the human machine has been carefully inspected, the individual will be advised to see his family physician, who will be furnished a full statement of the results of the examination, both physical and laboratory. The institute is fashioned somewhat after the Model Homes Association; that is, it is a philanthropy conducted on a self supporting basis. It is to charge a small fee for its work, and any receipts above cost, including a reasonable return on capital, will be devoted to extending its public usefulness.

NO SEX HYGIENE FOR MONTCLAIR, N. J.

Montclair school authorities have issued orders prohibiting the teaching of sex hygiene in the public schools of the town. Any teacher who violates the rule is liable to dismissal. Not only are the teachers and principals forbidden to discuss this subject, but they are forbidden to "lend or offer to lend to pupils books on the subject." It is said that this action of the school authorities is due to feeling created by a report that Principal Frederick C. Clifton, of the Watchung School, had given a talk on the subject to the boys of the upper grammar grades.

THE GREAT WHITE PLAGUE

"There is a dread disease," said Charles Dickens, "which so prepares its victim, as it were, for death; which so refines it of its grosser aspect, and throws around familiar looks, unearthly indications of the coming change; a dread

disease, in which the struggle between soul and body is so gradual, quiet, and solemn, and the result so sure, that day by day, and grain by grain, the mortal part wastes and withers away, so that the spirit grows light and sanguine with its lightening load, and, feeling immortality at hand, deems it but a new term of mortal life; a disease in which death and life are so strangely blended that death takes the glow and hue of life, and life the gaunt and grisly form of death; a disease which medicine never cured, wealth never warded off, or poverty could boast exemption from; which sometimes moves in giant strides, and sometimes at a tardy sluggish pace, but, slow or quick, is ever sure and certain."

PELLAGRA IN ENGLAND

Fifty cases of pellagra, whose existence only became known to any considerable section of the British public as a result of the disclosures at the recent International Medical Congress, have been found in England and Scotland and personally investigated by Professor Sambon.

Professor Sambon's doubts as to the maize origin of pellagra appear to be confirmed, according to the *British Medical Journal*, by the fact that the disease is found in the British Isles where maize is sparingly consumed.

THE PUBLIC SCHOOL ATHLETIC LEAGUE

The following health pledge has been taken by nearly 10,000 school boys in New York City, members of the Public School Athletic League: Keep your teeth in running order; good sprinters run with their teeth. A tooth brush is more valuable than a pair of dumb-bells. Take frequent baths. Select good companions. Make your own individual drinking cup, if necessary. Sleep with you windows wide open. Learn to "fight hard and square" in the game of life. Abstain from tea, coffee and tobacco. Be clean in both mind and body.

MOTOR CARS

The registered motor cars in the United States numbered 1,127,940, an increase of 522,939, Secretary of State Mitchell May of New York State says, over the 605,001 registered in 1911. During the period between the two estimates in the registration area of the United States, 4,072 foreign cars were imported. It would seem, therefore, that well over 1,100,000 motor cars now in use in this country are of American manufacture. It would be interesting to know what proportion of these are used by physicians.

CONTAGION

"That contagion may come, not merely on the wings of the wind, but in a cup of water or of milk, in the caress of affection, on the hand of pity stretched out to save, upon the penitential garment, or even upon the sacramental communion cup or the broken bread—these ideas, dimly dreamed of in the past, are among the very corner stones of sanitary knowledge today."

EUGENICS OF THE POTATO

Three French scientists—Sartory, Grallot and Thiebaut—are, we read, making a profound study of the sexual characteristics of the potato for the sake of eventually improving the breed. We knew, in a vague sort of way, that plants had sex—but we had not thought of sex specifically in connection with the potato. The idea is almost disconcerting. How many of these attachments "*a la Plato for a bashful young potato, or a not too French French bean*" have been really the Platonic and pure things they seemed after all? Mr. Anthony Comstock would do well to look into this matter.

DIGEST OF CURRENT MEDICAL LITERATURE

Potassium Mercuric Iodid.—D. Macfarlan, Philadelphia (*Journal A. M. A.*, January 3, 1914), calls attention to the value of potassium mercuric iodid (K_2HgI_4), formed by dissolving red mercuric iodid with twice its weight or more of iodid of potassium in alcohol or water. The formula of a 1 per cent. solution is given as follows: Mercuric iodid, 1 gm.; potassium iodid, 4 gm.; distilled water, 100 c.c. This solution is irritant to the skin and mucous membranes when locally applied, but in safe dilution comparatively large amounts can be given internally without producing severe symptoms. It seems to have no cumulative action—elimination appears to keep pace with assimilation. Little, therefore, can be said as to its noxious effects on the gastrointestinal tract when given internally in mild doses, but Macfarlan considers its value somewhat dubious in most, if not all, the diseases in which its internal use has been recommended. He says: "It does, however, seem to have a marked effect on all catarrhal conditions of the mucous membranes, clearing up a common cold, apparently shortening the course of croup and modifying the acute infections of the nose and throat and bronchi. This conclusion has been reached after careful observation and repeated trial. Nearly all patients with catarrhal conditions remark that it gives them great benefit in freeing the sticky mucus. This is particularly true in acute bronchitis. In those cases of gastritis and enteritis that exhibit much mucus the same effect has been noticed. It further acts by its irritation to the mucous membrane as a mild stomachic if used in a careful dose. In spite of frequent trials, I have not obtained the effects claimed for it in leucorrhea and in menstrual disorders, for a number of reasons." It has been useful in local application in nasal and sinus diseases, and has been used in syphilis and certain disorders of the skin, especially by the French, and Dr. Archibald Church has had good success with its use by intramuscular injections. But above all these incidental uses, it is as an antiseptic that its field is greatest, it being here practically universal in its possibilities, for in great dilutions its local effects and toxicity seem to be negligible, while its germicidal qualities remain high. "The value of these virtues can readily be realized when the following facts are again referred to: 1. The drug may be taken internally in doses of 5 drops of a 1 per cent. solution without toxic effect. 2. A 1 per cent. solution

has but a slight irritant action. 3. A dilution of 1:80,000, or nearly one thousandth of 1 per cent., exhibits marked germicidal powers." Macfarlan reproduces W. H. Park's table of antiseptic germicidal strength, in which it outranks all other bactericides, and says that there seems to be no limit to the use of potassium mercuric iodid in this field. Remarkable effects are produced in erysipelas, acne, pustular affections, lupus, psoriasis, purulent discharge in minor surgical cases, burns, old leg ulcers, etc. Even felons and boils can be shortened and sometimes be aborted by wet dressings of a 1 per cent. solution. For sterilization of instruments it is excellent, except for tarnishing when the contact is too prolonged, but this can be avoided by the addition of a little sodium bicarbonate to the solution.

Control of Cancer.—J. C. Bloodgood, Baltimore (*Journal A. M. A.*, December 27th), says that while we have evidence that cancer can be cured if taken in time, many physicians are still skeptical, and the patients themselves sometimes question the diagnosis when they find themselves relieved. We have, therefore, to meet this skepticism in both the profession and the public. The proportion of cures of fully developed cancer, *i.e.* cancer in which there can be no doubt as to the histologic evidence of malignancy, is small, but cures have been made, and the possibility of increasing their number is by no means out of the question. In the Johns Hopkins Hospital Surgical Clinic 80 per cent. of the cases that could be diagnosed only by exploratory incision or after operation were cured, while in the cases that could be diagnosed as cancer by retraction of the nipple or skin adhesion the proportion of cures after five years was 25 per cent., but both tumors alike were pathologically the same. It is the same type of cancer, yet the patient has eighty chances in one case to twentyfive in the other. This needs to be impressed on the profession and the public: that waiting for a possible clinical diagnosis means greatly lessening the chance of cure. This is true of all types of cancer in all parts of the body. Everywhere that we find cancers we also find tumors or growths which histologically are not cancer, and Bloodgood, in studying 820 pathologically developed cancers, found no well taken history that did not reveal a previous defect that might be accepted as one of these so called benign growths. He calls these "precancerous" growths, and believes that with their early recognition we can greatly reduce the cancer mortality, especially that from external or mucous membrane cancer. In cancer of the internal organs it is more difficult to dem-

onstrate the precancerous lesion. In cancer of the stomach the patient is fortunate if the appearance of obstruction is early, and his chances are greatly lessened if the early symptoms are slight. In curable cancer good surgery is important, and delay or too restricted operation may be disastrous. Bloodgood goes at some length into the description of the groups of cases of malignant disease, those hopeless and inoperable, which can at best have only palliative measures for their relief; those clinically malignant, but offering a possible surgical cure; the clinically benign, which are at first hopeful, and the precancerous cases, on the timely recognition of which our hopes of the control of cancer mainly depends. In most external cases of the last type the lesion can be cut out under local anesthesia at slight expense and inconvenience. In any apparently benign growth a properly performed operation does no harm, and if malignancy is found existing it may remove a probable focus of future malignant disease. It is the education of the public on these matters that is needed at the present time.

Gastric Ulcer.—R. H. Pierson, Fort Gibbon, Alaska (*Journal A. M. A.*, January 3, 1914), gives his experience with gastric ulcer as observed by him in robust miners and trappers in Alaska. Gastric ulcer seems to be their only digestive disturbance. The men all followed outdoor occupations, except one, who was a telegraph operator, and they were living mainly on a flesh diet, with few vegetables. Their bread was generally baking powder biscuits or sour dough hot cakes. Tea, coffee and some canned goods were also used; liquor was used excessively in only one case. With the rough food the cooking was poor, of necessity. Under the conditions of life, large amounts of food were required, and a high caloric value. For a time the patients got along well, but after a year or two of the life they began to show symptoms. In many cases it got no further than an inability to digest beans. The patients came to town, where they could get raised bread and green vegetables, and cured themselves. The etiology, according to Pierson's view, is the overwork of the stomach. To meet the conditions a strong, excessively acid gastric juice is hypersecreted, and ulcer results. These patients never acquire gastropnoia or atony, their trouble being that of a strong stomach overworked, rather than that of a weak one abused. This conception of the etiology of gastric ulcer may not apply to cases of persons of sedentary habits or city dwellers, but it is of interest as indicating the rational line of treatment in these cases. This was the one described by Weinstein in *The Journal A. M. A.*,

September 28, 1912, p. 1151. It consists of rest in bed for the first week, atropin and bismuth given before meals and sodium bicarbonate after, a saline aperient in the morning during the treatment, a cold pack over the stomach at night and a carefully regulated diet of moderate quantity, eaten slowly and well chewed, excluding stimulants, high seasonings, excessive sweets, meats and indigestible vegetables. The essential idea is giving rest to the stomach. The results in the patients treated were better than he would expect in city dwellers. The common idea that gastric ulcer is incurable is, he says, incorrect. It is a trouble, Pierson says, that may be expected to be submissive to proper treatment systematically carried out. The stomach is as faithful as any beast of burden, and its efforts to meet the demands of its master are its undoing. The surgical treatment, he considers, is better adapted to the chronic flat ulcers than to the deep hemorrhagic ones, as in these cases described.

Magnesium Sulphate.—We find in *Merck's Report*, Vol. XXV, the following:

The antispasmodic and analgetic action of magnesium sulphate in tetanus and tabes and in painful inflammatory conditions is well known—a 25 per cent. aqueous solution of the preparation has been given intraspinally and subcutaneously in these cases. It has also been found that the salt acts as an analgesic when applied locally. This method, which was suggested by Tucker, was successfully carried out by N. H. Choksy (*Lancet*, 1911, 1, p. 300) in erysipelas and cellulitis. According to the author's instructions, a 15 fold layer of gauze, soaked in a saturated aqueous solution of magnesium sulphate, is applied to the diseased region and its vicinity, and is covered with waterproof material. The gauze is moistened every two hours, in order that it may keep wet. As a result of these compresses, the swellings, the pain and the temperature are reduced; occasionally there is a loss of sensation, and the occurrence of a pricking sensation in the hands and arms. The treatment proved most successful in erysipelas of the head.

A. B. Jackson (*Klinische-therapeutische Wochenschrift*, 1911, p. 1116) found intramuscular injections of magnesium sulphate very useful in severe cases of acute articular rheumatism in which treatment with salicylic acid had failed. He usually injected 4 c.c. of a 25 per cent. solution into the gluteal region. The injections are said to cause no pain and no secondary symptoms; they are followed by a fall in the temperature and in the pulse rate, and by an

improvement in the arthritic symptoms, and lead to a cure in a comparatively short time.

Guthrie and Ryan (*Journal of Physiology*, 1910, Vol. 26, August 1st), based on pharmacological experiments, deny the anæsthetising action of magnesium sulphate. They only attribute to the salt the property of causing muscular paralysis, which may lead to paralysis of the respiratory muscles, with consequent partial asphyxia. They state that the presence of anesthesia depends upon the degree of this asphyxia and should not be regarded as a specific action of magnesium sulphate.

Disinfection of Typhoid Stools.—At the Fifteenth International Congress on Hygiene and Demography, held in Washington in September, 1912, Prof. Prausnitz, of Austria, described a simple and effective method of disinfecting typhoid stools devised by Dr. Kaiser in the Hygienic Institute of Gratz University. It consists in the addition of enough hot water to cover the stool in the receptacle, and then adding about one quarter of the entire bulk of quick lime (calcium oxide), covering the receptacle and allowing it to stand for two hours. The hydration of the lime generates enough heat to destroy the typhoid organism.

In the *Boston Medical and Surgical Journal* of January 8th, Linenthal and Jones, of the Massachusetts State Board of Health, published results of experiments made to test the efficiency of this method. They found that when hot water was used, as just stated, the temperature invariably rose to 75 degrees C. or over in ten minutes, and in twenty minutes it reached 85 degrees and often 90 degrees, and a temperature was maintained over 60 degrees for an hour and a half or longer. They next tested the effect of this method on the destruction of typhoid bacilli, and in all their experiments found that the typhoid bacilli were killed. Their conclusions are as follows:

"The addition of about a cupful of commercial unslaked lime and water to a typhoid stool will generate enough heat to kill the typhoid organism. While cold water may often suffice, it cannot be depended upon, owing to the variable quality of the lime. Hot water from 50 degrees to 60 degrees C. will always give the desired results. The lime used should be in lumps, broken up in small pieces and distributed over the stool.

"We believe that this is a simple, efficacious method, and should take the place of the various methods now recommended by local Boards of Health."

The Foreign Born Insane.—A study of the statistics of the foreign born insane admitted in the Blockley Hospital during the decade from 1903 to 1912, inclusive, is contributed to the *Journal A. M. A.* (January 3, 1914) by C. W. Burr, Philadelphia. As has been shown to be the case elsewhere, the figures reveal a much larger proportion of admissions from the foreign born than from the native population. The percentage of foreign born in the population of Philadelphia in 1910 was 24.7, of white native born 69.8, and of negroes (including mulattoes) 5.5. There were admitted to the Blockley Hospital during the decade 3,889 foreign born insane, out of a total of 8,746, or 44.5 per cent. The largest numbers of foreign born were from Ireland and Germany, there being 1,240 of the former nationality and 744 of the latter. Next follows Russia, including Poland, with 607, and Italy with 301, England with 304 and Austria with 186. Classed by color were 7,833 whites and 894 negroes and 19 Mongolians. The foreign born from Ireland and Germany aggregated a much longer period of residence than the Russians, and Hungary, considering the small number of its people in Philadelphia, made a bad showing, with 108 patients in the hospital. Burr thinks that a number of these may have been sent in from other parts of the state. In many cases he thinks the insanity might have been escaped by the foreign born had they remained in their own country, and he is quite sure that this is the case with many Russian Jews. He is unable to say how far the persecution of the Jews in Russia may have acted as a cause. As far as he expresses his opinion, it would seem that he thinks we are bearing a burden which could be more properly borne by the countries from which these patients came. He finds in Philadelphia a foreign born population of 24.7 per cent. supplies 44 per cent. of the indigent insane, and the same has been shown to be true in other portions of the country.

Sanatorium Treatment in Pregnancy.—C. S. Bacon, Chicago (*Journal A. M. A.*, September 6, 1913), says that there are 32,000 tuberculous women pregnant each year in the United States and about a third of them die within a year of labor. Of 10,000 children under five years old who die of tuberculosis each year, three fourths are born of tuberculous mothers. Besides this mortality there is also increase of infection among the attendants, relatives and associates, and this factor has not been sufficiently recognized in the past. The proper obstetric management of these cases can be carried out in a private house only with considerable difficulty,

and probably not more than 10 per cent. of the cases are ideally managed at their homes. Maternity hospitals do not care to take tuberculous cases, and the conduct of the latter part of pregnancy and a long puerperium cannot well be provided. Hence the necessity of a maternity department in the tuberculosis sanitarium, and Bacon thinks that three fourths or nine tenths of the cases should be cared for in such. Up to the present time there has been no provision for such patients in this country or in Europe, and this is probably in part due to the fact that no special emphasis has been laid on this feature of the tuberculosis problem and in part to the difficulty of making such provisions. It is with the object of calling attention to this need that his paper is written, and he gives an account of the provisions being made in the Chicago Municipal Tuberculosis Sanitarium now being constructed. In this there are accommodations provided for parturient women, a room for confinements and departments for caring for children. The outline is given as a contribution to the solution of the problem and to stimulate discussion. Later he hopes to be able to describe its work, and compare it with other like institutions.

Thymus Death in the New Born.—David (*American Journal of Obstetrics*, May, 1913) reports the case of a child who died in a spasm of dyspnea twentyfour hours after birth, exhibiting nothing abnormal in the neck and thoracic regions. The postmortem examination showed a greatly enlarged thymus in both lobes. The embryology and histology of the gland indicate that it is intimately concerned with the blood making and metabolic processes of the fetus. Recent studies in relationship existing between the placenta and the thyroid gland suggest that the large thymus in the new born must share in various disturbed conditions of material and fetal metabolism. In abnormal states it is reasonable to suppose that it adds a toxin to those formed in the placenta and in the ductless glands of the fetal body.

A possible reason for its sudden enlargement after birth may be found in the measures sometimes taken to establish respiration in the new born. The most simple and universally employed method consists in folding and unfolding the body of the child in such a manner as to encourage the circulation of the blood through the lungs and thorax. A delicate lymphatic organ, like the thymus, composed of lymph follicles, and with a very rich blood supply, might easily become surcharged with blood during this manipula-

tion, and its sudden engorgement through mechanical pressure might bring about death.

These suggestions are based, first, upon analogy between altered condition of other ductless glands of the fetal body and sudden death; and, secondly, on reported results of treatment addressed to the relief of mechanical pressure.

Quinin and Urea Injections in Hyperthyroidism.—Dr. Leigh F. Watson reports in the *Journal American Medical Association*, January 10, 1914, a number of cases of goiter treated by injection of quinin and urea hydrochlorid. The patients had been on medical treatment for from one to two years without improvement. In one case both superior thyroid arteries were ligated. This patient was suffering from the classical symptoms of goiter: nervousness, insomnia, tremor, with enlargement of both lobes of the thyroid, as well as of the isthmus, and increased pulse beat. Ninety minims of a 1 per cent. quinin and urea hydrochlorid solution was injected into the body of the right lobe, sixty minims into the left and the same quantity into the isthmus. The pulse decreased by degrees from 160 to 80. Insomnia, nervousness and tremor disappeared within forty-eight hours.

Two other cases are reported where injections alone were made (without ligation), in which there were the usual symptoms, together with tachycardia and diarrhea, in one some exophthalmos. Two and four per cent. solutions were used respectively in these cases, injection being made direct into the thyroid, as well as in the isthmus.

Improvement promptly followed, the pulse beat becoming less frequent, nervousness abating, while the diarrhea ceased, both patients gaining in weight. In these two cases the injections were the only treatment. Whether the results in these cases will be as lasting as in the first, when both injections and ligation were performed, remains to be proven.

Local and Conductive Anesthesia.—A. W. Meyer, of Heidelberg (*v. Bruns' Beitr. z. klin. Chir.*, Bd. 83, H. 3), recommends partial local anesthesia for locating the position of the large nerve trunks in atypical conditions, for extraction of deep seated foreign bodies. The application of local anesthesia in the form of novocain-suprarenin is possible in inflamed tissues. The method has proven its value in setting fractures (infiltration into the tissues surround-

ing the fracture), and also for diagnostic purposes; for orthopedic treatment (infiltration into or around the joints). Hirschel or Kulenkampff's anesthesia may be used. If the latter is applied for upper extremities, the supraclavicular nerve and some branches of the intercostal and inter-costo-brachial must be infiltrated with the novocain-suprarenin solution from the border of the sternocleidomastoid. For larger operations on the lower part of the arm and hand, subcutaneous nerve anesthesia in the elbow is advisable, whereas for operation on the palmar side of the hand, the subcutaneous injection in the median or ulnar nerves is sufficient.

Use of Salvarsan During Pregnancy.—For two years all pregnant syphilitic women under Jeanselme's observation were given intravenous injections of salvarsan in doses of 0.2 to 0.4 Gm. The injections were given weekly, each patient receiving from four to six. Fourteen women who had shown during pregnancy manifestations of recent and active syphilis were thus treated, and each gave birth at term to a living child, generally of normal weight. None of these infants exhibited stigmata of inherited syphilis. Four of them died not long after birth, but in each instance owing to some accidental cause. Two women with syphilis of long standing, who had already had several miscarriages, were enabled to carry pregnancy to a successful conclusion with the aid of the salvarsan injections. From these cases it may be concluded that salvarsan is not only not deleterious in pregnancy, but exerts a favorable influence on the latter.

Intraspinous Medication.—W. F. Lorenz, Mendota, Wis. (*Journal A. M. A.*, January 3d), describes a buret which he has devised for intraspinous medication, adopting the Griener-Friedrich three way stop cock, which has been employed in a number of cases. The apparatus is described and illustrated, and the illustrations are required for its better understanding. The advantages claimed are ease of sterilization and visibility of the fluid, better control of the rate of flow, and accurate estimation of pressure, no need of handling the spinal fluid that returns into the canal, and the possibility of thoroughly mixing the serum or solution introduced with the spinal fluid remaining in the upright arm previous to its return flow. The apparatus has been found very satisfactory in treating tabes by the Swift-Ellis method and in the direct administration of neosalvarsan into the spinal canal.

THERAPEUTIC PROGRESS

New Therapeutic and Prophylactic Experiments in Gonorrhea.—C. Brück, *Deutsche Med. Wochenschrift*, October 23, 1913, recommends the use of caviblen rods, made by melting the tube-like shells which contain uranoblen in powder form. Uranoblen is a forty per cent. combination of silver with uranin. Although uranoblen is almost nonirritative, in its use it is best to await the cessation of all acute manifestations. After treatment lasting fourteen days, the patients were permanently free of gonococci.

A. Sommer says, in the application of caviblen therapy in male and female urethral gonorrhea, in cervical gonorrhea, and the gonorrheal vulvovaginitis of small girls, the excellent results of the method are enhanced by its simplicity. The gonococci frequently disappear from the microscopic field after one application and almost always after a few insertions of the rods. For anterior treatment a straight rod twice daily is introduced; for posterior treatment every third or fourth day a longer, specially curved rod is introduced. Patients should be warned that the preparation stains.

A. Gluck asserts that uranoblen is an uncommonly safe means of killing gonococci; it has this property in a concentration which is ten times weaker than the therapeutic dose.

The Chemotherapeutic Treatment with Ethylhydrocuprin.—H. J. Vetlesen, *Berliner Klinische Wochenschrift*, August 11, 1913, reports the treatment of nine patients with fibrous pneumonia. The sole remedy used was ethylhydrocuprin, given in three daily doses of 0.5 gram, especially during the febrile period was this treatment persistently used. Only occasionally were symptomatic remedies given. During convalescence the author gave bitter wine of iron after the ethylhydrocuprin had been discontinued. In reviewing the outcome of treatment with this remedy, it is striking with what promptness the disease took a favorable course. Defervescence ensued in forty-eight hours after the onset of the disease, in three cases. In two others after two days and one-half. In two others in three days and one-half. In one case in four days and finally, in one case, in eight days. This last being a specially virulent, contagious form. A girl of five years and a boy of four years were taken down with the same disease in the home of this patient. The author emphasizes the necessity of early treatment.

Thymin and Its Action in the Treatment of Basedow's Disease; and Thymin as a Soporific.—R. Hirsch, *Deutsche Med. Wochenschrift*, October 30, 1913, reports that thymin tablets are made from the thymus gland of the calf. Two tablets (0.5 gram) daily were given under the supposition that the thymus effects hyperfunction or painful function of the thyroid. The results, consisting of an improvement in restlessness and sleeplessness, regression of the struma, exophthalmus, and cardiac disturbances were marked; an improvement was noticed in two cases in which operation had been without effect. As a soporific, thymin given in doses of one or two tablets in certain cases of diabetes insipidus, neurasthenia, arteriosclerosis, and dyspep-

sia, has also produced good effects. No untoward action was noticed. In animal experimentation, two doses of thymine of 0.5 gram each, daily produced an increase of the nitrogen metabolism and the calory production.

Ozone; Its Bactericidal, Physiological and Deodorizing Action.—From their experimental investigation of this subject, and in view of the evidence already in existence, E. O. Jordan and A. J. Carlson, *Journal American Medical Association*, September 27, 1913, conclude that the hygienic value of ozone in room ventilation would be hardly worth considering were it not for the persistent and sometimes extravagant claims made by the manufacturers and promoters of ozone generators. So far as the destruction of bacteria is concerned, these statements have little or no foundation, and there is no evidence for supposing that a quantity of ozone which can be tolerated by man has the least germicidal action. Disinfection in a closed room without inmates can be much more effectively carried out by means of formaldehyde or other gaseous disinfectant, and therefore, ozone has no place in practical room disinfection.

Clinical Experiences with Atropine Sulphuric Acid.—A. Philippsthal, *Berliner Klein. Wochenschrift*, November 3, 1913, concludes that the atropine sulphuric acid is an exceptionally effective remedy in asthma, in vagus neurosis, in certain tachycardias, in the night sweats of the tuberculous, and in iodism. It seems to have no action on the diseased pathological gastric secretion. As far as its action goes it is decidedly preferable to atropine sulphate, because the disadvantageous side actions, such as dryness in the throat, increase in the pulse rate, excitability, have never been noticed with the atropine sulphuric acid. On account of these facts the local pain produced by the subcutaneous injection is of less significance.

Sodium and Potassium Metabolism in Diabetes Mellitus.—S. Kohn, *Deutsche Medizinische Wochenschrift*, asserts that in diabetes the amount of potassium in the organism is increased, and that of the sodium decreased. There is a strong resemblance of the symptoms of potassium poisoning to those of diabetes; glycosuria is observed in increased potassium and decreased sodium administration. The cause of the metabolic disturbance lies in faulty gland functioning of the pancreas. The oatmeal cure now in vogue is justified by this theory.

Ebaga in Dermatology.—Oskar Neugebauer, *Wiener Klin. Wochenschrift*, November 13, 1913, describes ebaga as a combination of alkalies in various concentrations with stearic and palmitic acids, with the addition of a specially prepared mineral oil. The advantages given are an extremely penetrative power which enables the admixed drugs to be quickly absorbed, so that an effect is secured at a considerable depth. It is useful when fat is contraindicated, does not become rancid, and is economical.

Milk of Rutting Cows Harmful for Infants.—The milk of cows in heat undergoes a considerable chemical change, according to H. Steng (*Arch. f. Hyg.*, 1913, No. 6), and very likely contains ovariotoxins; it gives rise to diarrhea and derangement of the intestinal tract when fed to infants, and hence, must not be given to little children.

MISCELLANY

AN INTERESTING EXHIBIT IN MEDICINE AND SURGERY AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION

One fact alone would make the exhibit in medicine and surgery at the Panama-Pacific International Exposition the most important of any similar display at any preceding exposition, for when the world comes to San Francisco in 1915 to celebrate the completion of the Panama Canal, it will be divided in admiration of the two men who perhaps above all others are responsible, under the United States Government, for the successful termination of the gigantic work. And these two men are representatives of highest honor from the science of engineering and the science of medicine—Dr. William C. Gorgas, Colonel in the United States Army Medical Corps, is the physician who undertook to preserve the lives of the canal builders in a land of malignant disease, while the toilers were operating under the guiding genius of the great Colonel George W. Goethals, of the Corps of Engineers, United States Army.

Representatives of the science of medicine and surgery from every land under the sun will be present during the exposition, to pay tribute to the doctor, and incidentally to study the processes whereby the ravages of a disease ridden zone were stayed and the camp of the canal builders became the abode of health.

The element that alone would lend a distinctive character to the exhibit is the featured presentation of the methods whereby the deadly mosquito was fought in his native haunts of morass and jungle; the application of specially devised sanitary processes by which Dr. Gorgas and his men were victors in their struggle with deadly fevers, enervating malaria and others of the swarm of maladies that wait for men who penetrate those miasmatic lands, "where even the birds forget how to sing." A complete demonstration of these methods, as well as the equipment that, under man's uses, achieved success, will be installed for the advantage of the world by the United States Government. It will excite the interest not alone of the medical fraternity, but of all such nations as are interested in the colonization of the tropics.

The Emergency Hospital, another interesting feature of the exhibit in the department of medicine and surgery, scheduled in the exposition catalogue as "Group No. 35," will be a model emergency hospital, provided with its equipment entirely by exhibitors.

The law of averages works at expositions as elsewhere, and there will not be, even in 1915 in San Francisco, a suspension of the laws of gravitation, nor an annulment of the reactivities of cause and effect. Where a million people meet there will be, in spite of all precautions to the contrary, cases of sickness, and the foolhardy will be subject to the usual percentage of disaster. Hence the necessity for an Emergency Hospital.

This Emergency Hospital will be a model, equipped by the leading manufacturers of the country with the best instruments and appliances, and stocked with every drug that physicians know.

Dr. R. N. Woodward, at present in charge of the United States Marine Hospital, situated near the Golden Gate, has been appointed by the Treasury Department to assume control of the Emergency Hospital at the exposition, and he has taken great pride in assembling all of the elements, materials and equipment necessary for a model institution. How well he has succeeded, and is still succeeding, with the choice of the whole world's supply at his disposal, will be seen by the interested when the exposition is opened.

Although the entire equipment is not yet provided, and while changes in what has already been selected may be made if later proffered equipment is preferred, Dr. Woodward is sure that the Emergency Hospital at the exposition will be as near perfection as human endeavor, working in this most enlightened age, can make it.

Two superb examples of the skill of the manufacturers of automobiles will be installed, an X-ray apparatus will be placed in the X-ray ward of the hospital, sterilizing apparatus, wound dressing appliances will be donated, and one manufacturer is providing even the spreads, with the seal of the exposition woven in the center, for the twenty beds that will be placed in the men's, women's and isolated wards. Tables for minor and capital operations, the innumerable electric surgical appliances that human ingenuity has created, a library of medical books, a high power microscope, with photographic apparatus and dark room for the development of negatives, and, finally, a cradle for the possible future president or countess who may insist, perhaps prematurely, on visiting the exposition.

It is not contemplated by the exposition's directorate that patients will be kept at the hospital over night, for it is to conform strictly to its classification as a hospital for emergency cases. If, however, the patient's health were to be jeopardized by removal to his home or to another hospital, he will not be removed.

The installation of the emergency hospital, with the variety of equipment thereof—from beds and stoves and other nonmedical material to drugs, ether and operating tables and other essentially surgical or medical material—might cause a confusion in exhibits were the scheme worked out with less careful consideration of all the exhibitors. Wherever the display normally would fall, whether in the department of Liberal Arts or Manufactures and Varied Industries, there the exhibit will be actually considered. Surgical instruments in use in the Emergency Hospital will be regarded as in the Department of Medicine and Surgery in the Palace of Liberal Arts, and will there be subjected to competitive examination with the other exhibits, although manufacturers, judging by the applications for privileges of hospital employment of products, are not unaware of the greater advantage accruing to their exhibit when shown under working conditions. In any event, the jury of awards will be careful to consider that advantage and will not let it prejudice the displays under glass cases in the Palace of Liberal Arts.

In the meanwhile the student of municipal affairs, the expert in town policing, as well as the doctor, the surgeon and the nurse, will be vastly interested and enlightened by the model emergency hospital at the exposition, where any case will be cared for, from that provided by a female exercising her inalienable right to faint, or that of a child after his first lesson in the immutability of gravity's law, to that of an impulsive infant whose ambition to occupy the pretty cradle will reflect more credit on his tact than his decorum.

MICHIGAN MAN HEARS A TROUT STREAM CALLING TO HIM

The story of the love of a life long fisherman for a certain trout stream far off in the woods of Michigan proved so pathetic at the dinner of the Michigan Society, in the Hotel Astor recently, that many of the 125 Michiganders gathered about the board were moved to tears.

The speaker who affected the diners so strongly is approaching the threescore and ten, and for the last forty years has fished in one stream in the woods of his native State. He told his fellow exiles from Michigan last night that down town in "Little Old New York" the chimes of Trinity rang into his ears daily the one theme, that there were just so many days more for him to suffer the pangs of civilization, and that with every deep note of every bell the call of the crystal voice of that trout stream was accentuated.

"This coming summer," he said, "an iron railing will be placed around a bit of ground on the bank of that stream, and there will be room enough for the bodies of three men within it. I have arranged for my burial place there, and my two fishing companions will join me there.

"We have listened to the laughter and the song of that brook, and to the sigh of the wind in the pine tops, for many years. It seems to me all the time I am here in the great city that stream is fashioning new melodies as it ripples and sings and laughs over its gray and white bed. I really believe that it is rehearsing for me, and this coming summer, when I go again to it to leave civilization behind me, I will direct the laying out of the spot where I and my two fellow fishermen will be buried.

"The chimes of Trinity sound out 'Praise God, from Whom All Blessings Flow,' to the New Yorker, but to me they sound every day in the week we are now in it, 'Only Four Months More to Little Old New York.'

"So I have arranged to be buried by that stream, and I believe that while I have been only a sinner and a fisherman, that in case I should be admitted to Paradise, Saint Peter, who was himself a fisherman, will say, 'Brown, there are your wading boots and your tackle, and yonder angel will take you beyond the pearl paved streets to your old trout stream.'"

SCIENTIST SAYS BABY FACTORIES WILL TAKE THE PLACE
OF PARENTS

That it was possible to create human life by chemical means and that a baby factory was not out of the question for the distant future was asserted by Dr. Martin Kellog Schermerhorn of the Department of Philosophy in Harvard. He spoke before the Metaphysical Club.

"Life is not confined to the animal and plant world," he said. "The whole universe is alive, and all that lives is conscious.

"Animals are conscious and gifted with the power of thought and imagination, even though Roosevelt, who thinks himself a great hunter, says they do not know when they are being slaughtered.

"Plants are conscious, and Ruskin and Goethe agree they are capable of exercising strategy and forethought. Even Darwin said plants were sensitive, and hence he must have believed they were conscious.

"It is obvious that the evolution from so called matter to human life is possible. The chemist of the future will labor so that men shall be made in baby factories as chickens are hatched in incubators."

FELLOW TRAVELERS

Four men took ship across the sea, quaint fellows whom the wind had blown together from the uttermost ends of the earth. One was baldheaded; another had thick curly locks; one was brown complexioned, another the color of old ivory; one was dressed in rags, another in flowing white robes.

From the ends of the earth they came, but they were all traveling toward the same goal.

They were thirsting for talk. But none being willing to commence and thus, perhaps by an incautious remark, hurt the others' feelings, they remained silent.

But in the morning when, red and gold and purple, the young day rose, and in the evening when, tired and sad, the old day closed his eyes, the four fell on their knees and prayed to the living God who had breathed life into their bodies of clay. The monk counted the beads on his great wooden rosary; the dervish lifted the palms of his hands toward Allah's tent and repeated the ninety-nine holy names of the Incomparable; the Brahman made elaborate prostrations in deepest silence, and the Buddhist bonze kissed the yellow dust.

And one night the dervish broke the heavy silence and said:

"To whom do you pray?"

"To God," answered the monk.

"To God," answered the Brahman.

"To God," answered the bonze.

And as brothers they gripped hands in silence. For they were pious men and they prayed to the same God.

The new moon had risen and swung in the skies like a ball of silver.

"God walks over the waters," said the dervish, with dignity. "In his turban shimmers the white moon."

"You are wrong," irritably replied the monk. "Turban indeed! No, no; the good God wears a halo of gold—and decidedly not a turban."

"You are both wrong," cried the Brahman. "God wears a garland of lotus flowers—lotus flowers, pale and holy and odorous—and a thousand times more beautiful than your foolish halo."

"May God curse your foul and lying souls!" shrieked the bonze. "You are all wrong, the four of you. He wears a cue, our God—a nice, thick, glossy, black cue—and from his cue there hang little silver bells—and they sing little silvery songs——"

But already the monk's heavy fist had smitten him between the eyes.—*Smart Set*, September, 1913.

THE POETRY OF TOOTHACHE

Walt Mason writes: "Now my weary heart is breaking, for my left hand tooth is aching, with a harsh, persistent rumble that is keeping folks awake; hollowed out by long erosion, it, with spasm and explosion, seems resolved to show the public how a dog gone tooth can ache. Now it's quivering or quaking; now it's doing fancy aching, then it shoots some Roman candles which go whizzing through my brain; now it does some lofty tumbling, then again it's merely grumbling; and anon it's showing samples of spring novelities in pain. All the time my woe increases; I have kicked a chair to pieces, but it didn't seem to soothe me or to bring my soul relief; I have stormed around the shanty till my wife and maiden auntie said they'd pull their freight and leave me full enjoyment of my grief. I have made myself so pleasant that I'm quarantined at present, and the neighbors say they'll shoot me if I venture from my door; now a voice cries: "If thou'd wentest in the first place to a dentist—" it is strange that inspiration never came to me before!"

One of the advantages of living long in the world is that one steadily acquires an increasingly interesting point of view. Even in middle life one begins to see for one's self the evolution of things. One gets a glimpse of the procession of events, the march of the generations.—*The Atlantic Monthly*, February, 1911.

BOOK REVIEWS

Diseases of the Heart. By JAMES MACKENZIE, M.D., F.R.C.P., Physician to the London Hospital (in charge of the Cardiac Department), Consulting Physician to the Victoria Hospital, Burnley. Third Edition, Henry Frowde and Hodder & Stoughton, Oxford University Press.

This is a voluminous work, consisting of 500 pages, some forty seven chapters and an appendix. The first edition was issued in 1908; the second in 1910, and this the third in 1913. Such is the advance in medical science that a new work on heart diseases must needs pass through three editions in five years; surely an evidence of the increase of knowledge due to greater and growing understanding of technic and the application of remedial measures. As the author declares, the advances have been made through the clearer differentiation of the signs of disease, the electrocardiogram being of great service; the bearing of heart manifestations on the question of heart failure, present and remote; the basing of treatment on sound and scientific principles through the study of cardiac physiology and therapy.

In a review of this work, we can point out only a few, and that briefly, of the points that appeal to us as of special interest.

The arrangement of the subject matter appears to us as somewhat confusing, the first chapter being followed by three on heart failure and muscle exhaustion; these by two on value and significance of symptoms; another on functions, anatomy and physiology, then several chapters on symptoms and instrumental methods of examination, and these again by physiological and pathological conditions. The arrangement will doubtless prove an excellent one for the student as well as the practitioner for systematic reading, but not so well adapted for a hasty reference.

Descriptions of conditions are clear, graphic, really pen pictures, which require but a fair knowledge of the anatomy and physiology of the heart to readily recognize the clinical conditions. The author deals with problems encountered by pointing out faults as accepted solutions, and also indicates clearly in what directions investigations should be made. His theories of causation and symptoms of angina pectoris and other cardiac neuroses as well as the laws given concerning visceromotor and viscerosensory reflexes, show deep study and close observation. The same may be said of his treatment of rhythm irregularities, including heart block, Adams-Stokes disease and ventricular rhythm. He gives much time to sphygmographic and electrocardiographic tracings, but comparatively little to blood pressure. He criticizes the Nauheim bath treatment. While the chapter on drug treatment is valuable, it is surprising how few drugs are mentioned. Strychnine, caffeine and camphor receive scant mention, while ammonia is omitted entirely.

The analysis of 92 cases from his actual experience, giving tracings during various conditions in such cases, is extremely interesting and valuable.

Finally the work is well illustrated, printed and bound. It will doubtless be widely read.

Old Age Deferred. The Causes of Old Age and Its Postponement by Hygienic and Therapeutic Measures. By HAROLD LORAND, M.D., Carlsbad, Austria. Fourth edition. Translated, with additions, by the author from the Third German Edition. Philadelphia: F. A. Davis Company, 1913. Price \$2.50 net.

The author declares in his preface that while it is still impossible for us to create a young man out of an old one, it is quite within the bounds of possibility to prolong our term of youthfulness by ten or twenty years. That we need no longer grow old at forty or fifty; we may live to the age of ninety or one hundred years, instead of dying at sixty or seventy.

That this can be brought about by the observance of certain hygienic measures and improving the functions of a certain few of the glandular structures

in our bodies, provided incurable organic disorders have not too gravely compromised one or more of our main organs, is not alone the dream of a certain few, but a demonstrated fact by certain scientists who have worked along these lines. And herein lies its one hopeful and bright promise for the future of the aged, for, as we grow into a clearer understanding of the functions of the organs and especially of the ductless glands, can we more and more minister to the complaints of the aged. What a promising field for study by the sincere and painstaking physician. Heretofore the complaints of old men and women have been attributed to natural causes and palliative measures only have in most instances been resorted to. We build many hospitals for children; have dispensaries and clinics; text books devoted to children's diseases; professorships in colleges and physicians' specialists innumerable for treating children, but few indeed for the aged, who, with proper care, could be spared to enlighten us with their experience, gladden our homes and comfort our hearts.

Dr. Lorand has given us much to study, numerous arguments which would seem thoroughly scientific and therefore authoritative. His instructions in hygiene, diet, habits and prophylaxis are worthy of careful study; while measures for treatment cover all contingencies. His twelve commandments should be committed to memory by every physician. There are fifty-eight chapters, with a glossary and index, in all nearly five hundred pages; the book handsomely printed on unglazed paper, and bound with decked edges. We take pleasure in commending it to all medical men, as well as scholars in all walks of life.

Manual of Surgery. By ALEXIS THOMPSON, F.R.C.S., Ed. Professor of Surgery, University of Edinburgh, Surgeon, Edinburgh Royal Infirmary, and ALEXANDER MILES, F.R.C.S., Ed. Surgeon, Edinburgh Royal Infirmary, in three volumes. Fourth Edition (Second Impression) Revised and Enlarged. Edinburgh, Glasgow and London: Henry Frowde and Hodder & Stoughton, 1913. Oxford University Press, American Branch, 35 West 32d Street, New York.

This work is a complete treatise on modern surgery in three convenient sized volumes. It covers the whole subject and is authoritative, as well as moderately priced. The text is copiously and illuminatingly illustrated, printed with clear type on good paper and handsomely bound.

Numerous voluminous systems on surgery have recently appeared, encyclopedic in character, whose value is beyond criticism, more useful, however, for the library of the consultant than the student or the general practitioner, who is called on to do more or less minor and other surgery. This work fills a want for an authoritative text book, a handbook for the student as well as the general practitioner, and as such should be highly appreciated. We can offer no greater praise.

The Practical Medicine Series. Volume IX of this Series. Skin and Venereal Diseases, Miscellaneous Topics. Edited by W. L. BAUM, M.D., and HAROLD N. MOYER, M.D.

and

Volume X. Nervous and Mental Diseases. Edited by HUGH T. PATRICK, M.D., Professor of Neurology in the Chicago Polyclinic, Clinical Professor of Nervous Diseases in the Northwestern University Medical School, etc., and PETER BASSOE, M.D., Asst. Professor of Nervous Diseases, Rush Medical College, Series 1913. The Year Book Publishers, Chicago.

The ten volumes that make up the year's series of these handsome and valuable resumés of clinical contributions to the several branches of medicine and surgery for the year deserves a place in every medical library. It is a great task for one to undertake to read and cull the useful in our voluminous annual contributions to medical literature; to select the useful and relegate to the dust heap the worthless that incumbers our journals and books, text and reference; to present briefly, concisely and with an eye to the helpful for the busy general practitioner. That the authors of these series have accomplished their task is clearly in evidence in all of the volumes.

The Intravertebral Foramen. An Atlas and Histologic Description of an Intervertebral Foramen and Its Adjacent Parts. By HAROLD SWANBERG, Member of the American Association for the Advancement of Science, with an Introductory Note by Professor HARRIS E. SANTEE. Illustrated by 16 full-page plates, none of which have ever before appeared in print. Chicago Scientific Publishing Co., Grace and Osgood Streets, 1914, Chicago.

As Doctor Santee declares in his introductory note, "Accurate information is always valuable." This monograph shows a painstaking study of the anatomy of the intervertebral foramina, and the histologic structure of the part with special reference to the relations of the nervous structure and the summary proves conclusively that it is not possible for pressure to be exerted at this point upon the spinal nerve or nerves. This is highly interesting as it has been claimed by a so-called school that the great majority of diseases have their origin from various spinal abnormalities, which result in producing pressure or other phenomena, to the nerves in the intervertebral foramina. This is, as far as we know, the first scientific work on this subject to appear which can be accepted.

The plates are beautiful, type, paper and binding exceptionally good. The book should be widely read by medical men.

Defective Ocular Movements and Their Diagnosis. By E. & M. LANDOLT, Paris. Translated by Alfred Roemmele, M.B., Ch.B., and Elmore W. Brewerton, F.R.C.S. London: Henry Frowde and Hodder & Stoughton, Oxford University Press, 1913. American Branch, 35 West 32d Street, New York. Price \$2.00.

The author declares in his preface that if sometimes affections of the movements of the eyes are due only to local lesions, they more frequently accompany all kinds of general diseases. On the other hand, the analysis of the various forms of oculomotor disturbances is of the highest importance in diagnosing the different diseases of the brain and nervous system.

These premises are well taken, as will be clearly shown in a careful reading of the book, which is handsomely illustrated throughout, well printed and bound.

E. Merck's Annual Report of Recent Advances in Pharmaceutical Chemistry and Therapeutics, 1912. Volume XXVI. E. Merck Chemical Works, Darmstadt, 1913.

It has been our good fortune to receive for review this volume for a number of years. It always receives a hearty welcome. In the volume before us we have a complete review of the world's literature on Lecithin, comprising over 70 pages. The importance of the subject justifies the length, to which is appended a complete bibliography. Following is a summary of scientific references to the most notable medicinal agents, principally the newer ones.

This recent volume will prove as valuable as former ones to all interested in pharmaceutical chemistry and therapeutics.

First Book of Health, a Textbook of Personal Hygiene for Pupils in the Lower Grades. By CARL HARTMAN, B.A., M.A., Instructor in Zoology, University of Texas, and LEWIS BRADLEY BIBB, B.A., M.D., Attending Physician, Austin Sanitarium. With one hundred and twenty two illustrations. World Book Company, Yonkers-on-Hudson, New York, 1913.

The title of this small book explains its purpose. We believe that it will fulfill its purpose.

Epidemiologic Studies of Acute Anterior Poliomyelitis. By WADE H. FROST, Hygienic Laboratory Bulletin No. 90. Government Printing Office, Washington, D. C., 1913.

A very valuable bulletin of over 250 pages for those interested in Acute Anterior Poliomyelitis.

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ORIGINAL ARTICLES

AN ADDRESS ON PNEUMONIA: ITS NATURE AND TREATMENT*

BY SIR JAMES BARR, M.D., LL.D., F.R.C.P., F.R.S.E.

Honorary President of the Society

[Contributed to THE AMERICAN PRACTITIONER.]

The subject of pneumonia, which I have chosen for this address, may appear to most of you threadbare, and it is one on which I have frequently lectured and written, but it is always possible to present an old subject in a new light. Moreover, a disease which kills more of His Majesty's lieges in this country than any other, with the single exception of tuberculosis, must always command the attention of thoughtful men. Tonight I shall not weary you with any historical sketch, diagnostic problems, or symptomatology, with which I shall assume that you are all familiar; but I shall limit our attention to some points which I think worthy of the consideration of an intellectual audience. I have long held that pneumonia is, to a great extent, a preventable disease, and, in dealing with this ubiquitous affection, prevention must more largely rest with the general practitioner than with the medical officer of health. For the prevention and cure of this or any other disease we must have a good knowledge of its incidence, etiology, and proper treatment. It is to these topics that I shall devote your attention tonight.

INCIDENCE

In 1909 the deaths from pneumonia in England and Wales considerably exceeded those from phthisis, the numbers being per 1,000 deaths, pneumonia 89, phthisis 74.6, and the rate per million living, pneumonia 1,290, phthisis 1,080. In 1911 the death rate from pneu-

*Delivered before the Glasgow Southern Medical Society.

monia had fallen to 1,041 per million living, while the deaths from phthisis (including acute military tuberculosis), reached 1,084. This death rate from phthisis of 1,084 per million persons amounted to 7.4 per cent. of the total death rate, and was of the rate of 1,256 for males and 923 for females. It would seem as if the great fall in the death rate from tuberculosis, which was very marked during the past fifty years, has been somewhat checked since the great outcry about the conquest of consumption began. In 1911 the deaths from all forms of tuberculosis in England and Wales were 53,120, against 51,317 in 1910. There is evidently still plenty of scope for those gentlemen who have done so much shouting and made so little progress.

The total deaths in England and Wales in 1911 from pneumonia were 21,582 males and 16,060 females; total, 37,642, which gives a death rate per million persons of 1,041. There were also 14,391 deaths from pneumonia as a complication of other diseases, such as measles, whooping cough, influenza, enteric fever, etc.

In the Registrar General's report for 1911, Dr. Stevenson remarks on the mortality from pneumonia that, "apart from London, where it is high, there is a steady decrease from north to south in all classes of area and in both sexes, the position of Wales being intermediate between the North and the Midlands. The range of mortality is extreme, being four times as great for males in the county boroughs of the North as for females in the rural districts of the South, and not far from three times as great when persons of the same sex are compared. Even when comparison is restricted to the same class of area, in each case the mortality of the North is in no instance very much less than twice that of the South. No doubt this depends to some extent upon industrial conditions, but these can scarcely explain the great difference between the North and the Midlands. Evidently pneumonia is to a large extent a preventable disease, and the North of England has still much to learn with regard to its prevention. Statistics show pneumonia to be largely a disease of town life, as in all parts of the country mortality increases with urbanization, though the county boroughs of the South suffer less than the rural districts of the North." The death rates from pneumonia and phthisis in London are very heavy, being, respectively, 1,253 and 1,382 deaths per million persons living; these rates are high for the South, but there are many cities in the North of England and in Scotland where the death rates from these diseases are much higher.

In dealing further with the incidence of this terrible disease I shall take Glasgow and Liverpool, with which cities I am fairly well

acquainted. I am indebted to the reports of the Medical Officers of Health of Glasgow and Liverpool for much statistical information. In their reports for 1912, before we got greater Glasgow and greater Liverpool, the two cities were very similar in population, birth rate and death rate, the only striking difference being in density of population, which was in Glasgow 60 persons to the acre and in Liverpool 45.2; the deaths from pneumonia were in Glasgow 1,378 and in Liverpool 1,469, which gave a respective death rate per million persons living of 1,756 and 1,953.

The increase in the death rate from pneumonia during recent years is, no doubt, partly due to a more correct certification of deaths, many of those formerly labeled "bronchitis," especially among children, being now more correctly designated pneumonia. But whatever the cause of the apparent increase, there can be no doubt that the death rate from this disease is somewhat fearful. During 1912 there were in Glasgow 723 deaths from pneumonia under 5 years of age, and 576 over 25 years. In Liverpool at these respective ages there were 738 and 629 deaths. In Glasgow during the same year and at the same ages there were 256 and 648 deaths from bronchitis, while in Liverpool the respective number of deaths were 375 and 1,022. From these statistics it would appear to me that correct death certification is rather more strictly carried out in Glasgow than in Liverpool. Both these diseases are very fatal at the extremes of life, and bronchitis especially so in old age, while pneumonia is the much more fatal of the two in middle life. In these two cities between the ages of 25 and 45 there were 377 deaths from pneumonia and only 115 from bronchitis.

Pneumonia occurs in all climes and is fairly common in many tropical countries. In this respect its incidence differs from that of bronchitis, which increases in frequency as we recede from the tropics. Hirsch says:

Although the *geographical position* cannot be shown to have much to do with differences in the diffusion of pneumonia over the globe, yet the amount of sickness depends very decidedly upon certain influences of *season* and *weather*.

In this insular climate the disease reaches its maximum about December and January, and is about twice as frequent in the winter and spring months as it is in the summer and autumn. On the other hand, according to Hirsch and Jürgensen, it reaches its maximum from February to May in the Continent of Europe and in America. Hirsch says:

We may with all confidence conclude from the very pronounced association of pneumonia, whether sporadic or epidemic, with winter and spring, that the origin of the malady is dependent on weather influences proper to those

seasons, and more particularly upon sudden changes of temperature and considerable fluctuations in the proportion of moisture in the air. That conclusion finds support in the opinion expressed by many observers in all parts of the world, that the number of sporadic cases of pneumonia, as well as the extent and severity of its epidemics, is in direct proportion to the degree in which these influences, the changes in temperature in particular, make themselves felt, and that any exceptionally large number of cases of inflammation of the lungs at other seasons, more especially in summer, has coincided with the prevalence of the same meteorological conditions phenomenally at that season.

That conclusion is still further borne out by the fact that in those northern regions (Russia, Sweden, Denmark, Germany, England, North of France, and the Northern States of the American Union) where the most sudden and severe changes of temperature fall in the spring, the largest number of cases is met with in the spring also; while in the warmer and subtropical countries (Italy, islands of the Mediterranean, Spain and Portugal, Greece, Algiers, Southern States of the United States, Chili and Peru), which are subject to these meteorological influences for the most part in winter, it is winter that represents the proper season of pneumonia. One other fact deserves to be noticed here—namely, that those tracts of country, especially in the tropics, which are highly favored in their climate, or in the steadiness of the temperature from day to day (Egypt, many parts of India, including Bengal and the plain of Burma, California, etc.), are subject to pneumonia to a comparatively slight extent.

It is much less prevalent in the country than in town, and less among those who lead an outdoor life than among those whose occupations confine them to close, ill ventilated and insanitary buildings. It is rarely nowadays contracted at sea, though I have seen it develop there. In former ages there were many epidemics of pneumonia in the navy, barracks, jails, workhouses, asylums, etc. None of the Polar expeditions seem to have suffered from it. Exposure to cold, especially damp cold, seems to lead to catarrhal affections rather than to true pneumonia; sudden variations of temperature may so depress the resisting powers as to become a markedly predisposing cause of the disease. It has been correctly asserted that exposure during sleep increases the predisposition to this disease, and this is no doubt due to the lessened control of the nervous system. This applies more especially to the aged and young, whose resisting powers are easily enfeebled; consumptives and others who can keep the furnace burning within, readily withstand the cold air in the bedrooms, though draughts of cold damp air may easily induce catarrhal conditions. Frequent draughts of alcohol are, in my opinion, a much more important predisposing cause than any draught of cold air, and this may to some extent account for its greater prevalence among men than among women. A high barometric pressure is inimical to the origin of pneumonia, and is of advantage in the treatment of the disease. A cold, foggy atmosphere saturated with moisture is very deleterious.

RACE

Hirsch says:

While the immigrants from northern latitudes to subtropical or equatorial regions enjoy a comparative immunity from inflammation of the lungs, the natives of the tropics and most of the negroes are subject to the malady in quite a peculiar degree, not merely when they go to live in colder regions, but also within the countries of their birth. I am unable to say how far this fact is to be explained on the ground of a predisposition (congenital or acquired) in the colored races, particularly in the negroes; or whether in their case also the wretched state in which they live, and their notorious carelessness in exposing themselves to the weather, may not be to some extent the decisive thing.

There has been a good deal of agitation about the excessive death rates from phthisis and pneumonia among the negroes engaged in mining work on the Rand. On the other hand, the Chinese when thus engaged were very healthy, the death rate from all causes being only 12 per 1,000 living, while the general death rate of the negro population was often as high as 40 or 50.

There is no race exempt from this disease, though some seem much more liable to it than others, and in the same race the difference in individual immunity is often very marked.

SEX

While the incidence is less among women, the percentage mortality among those affected is quite as great if not greater than among men, and this is perhaps due to the lesser vital capacity of females. This disparity in the mortality between the sexes occurs at all ages, and is a markedly contributing cause of the excess in the female over that of the male population.

AGE

There is no age exempt from pneumonia; statistics show that it is most common and most fatal during the first two years of life, and even at this early period of life the incidence and mortality is greatest among males. The disease is very prevalent and fatal up to the age of 5; after this the incidence and mortality are low till 25 or 30. There is then a gradual increase both in the incidence and mortality up to the age of 65 years, but in old age the occurrence and mortality are not so great as from bronchitis. It frequently attacks those of strong constitution, but rarely when they are in good health, while the weak and debilitated are very prone to the disease.

ETIOLOGY

Pneumonia—both croupous pneumonia and bronchopneumonia—is an infective process for the most part due to the pneumococcus of Fraenkel, though many other microorganisms play an important part in its causation, such as the influenza bacillus, staphylococci,

streptococci, the *Bacillus typhosus*, the plague bacillus, and practically all the pathogenic bacteria. Since 1890 the prevalence of influenza has led to a varying increase in the number of cases of pneumonia. Here the inflammatory mischief is of a low congestive type and often rapidly fatal; but the bacillus of Pfeiffer does not seem to lead to the marked consolidation of the lung which takes place in cases associated with the pneumococcus of Fraenkel. However, in these cases there is not infrequently a mixed infection. The pneumococcus usually exists as a harmless organism in the mouth and upper air passages. What, then, are the predisposing causes which give rise to its cultured malignancy in the air cells, causing a serious disease, which, as we have seen, occurs in all climes and at all ages?

There can be no doubt that the pneumococcus, either alone or in association with other pathogenic organisms, is the chief cause of pneumonia or pneumonic fever in the vast majority of cases, but in the present day no one will contend that it is the only cause of the very large and varied class of diseases which, according to our present classification, we group under the generic head of "pneumonia." Many of the cases differ very widely in their general characters, even apart from the predisposition or special constitution of the individual affected, and have very little in common except that they all involve an inflammation, more or less, of the lung. Who can view a true croupous or fibrinous pneumonia, involving perhaps the whole of one lung, without much more nervous disturbance than that of sleeplessness, and a case of pleuropneumonia limited to the apex of one lung, and associated with wild and noisy delirium, without coming to the conclusion that there is at least a difference in the virulence of the toxin in the two cases?

The pneumococcus is often sparsely disseminated in the expectoration, while staphylococci and streptococci may be found in much greater profusion. I have recorded a severe case of pneumonia associated with phlegmonous erysipelas and abscesses in the leg; streptococci were found in the purulent discharge, and both the patient's lungs and leg were cured by antistreptococcus serum. In another very severe case of pneumonia with mixed infection, in a young lady, which I published in 1900, an abscess was apparently forming in the lung, and streptococci were found in the serum obtained from the focus by an exploring needle; she was cured by a few injections of antistreptococcus serum.

In surgical practice cases of pneumonia are not at all uncommon, and are generally ascribed to draughts from the window, whereas the true cause may be some infective pyemic organism. In operations in the mouth and throat pneumonia is especially frequent. In

my opinion, when possible, no operation should be undertaken in this region until a careful examination of the flora of the mouth and throat has been made for pathogenic organisms and a suitable vaccine administered. Very many years ago my friend, Mr. Paul, in his cases of operation for cancer of the tongue and floor of the mouth, adopted my suggestion of placing the patient for some days before the operation on a mixture containing calcium chloride and administering three doses of antistreptococcus serum; since then he has had no pneumonia in such cases. More recently I wanted him to try a vaccine as a preventive measure, but he avowed that he was quite satisfied with his present procedure, as he has not had a single failure.

The pneumococcus is often present in the mouth and upper air passages even in health as a harmless saprophyte, but in these low septic pneumonias of which I am speaking I do not think that it is often the principal offending organism. Pneumonia is often associated with influenza, typhus, typhoid, diphtheria, measles, anthrax, glanders, pneumonic plague and other infectious diseases, and in such cases the pneumonitis most probably owes its origin to the microorganism of the primary disease, though in certain cases the pneumococcus may be also in action. An inflammatory process in the lungs or elsewhere may be started by a great variety of microorganisms, but a true croupous pneumonia starting and ending abruptly is due to the pneumococcus. I have seen pneumonia occur as a sequel to carbolic acid taken with suicidal intent. Again, we have the so called ether pneumonia—probably a true pneumonia—and the hypostatic pneumonias associated with many debilitating diseases. We have also seen that in 1911 there were 14,391 terminal pneumonias in England and Wales. I have no doubt that in the future all these varied types, which we now classify under the generic head of "pneumonia," will be arranged in proper classes; in fact, we have now got lobar pneumonia, bronchopneumonia and pleuropneumonia, and in our treatment of individual cases we are largely influenced by our knowledge of their nature and causes. Perhaps our classification does not matter very much so long as we recognize the true nature of each individual case, and recollect that it is the patient rather than his disease which we have got to treat.

I have reckoned that the incidence of pneumonia affects at least 1 per cent. of the population of Glasgow and Liverpool each year. It may, of course, be looked upon as a good racial disease, as it kills the weaklings, and, as a rule, causes no permanent injury to the survivors. But, unfortunately, it does much more, and cuts off a large number of both sexes, more especially the male sex, in the

prime of life. It is often very appalling to see the bread-winner of a large family cut off in the vigor of manhood after a few days' illness.

Notwithstanding the prevalence and widespread nature of this disease, there are very many individuals fairly immune, but even these become susceptible when their resisting power is lowered from any cause. The domestic fowl is fairly immune to anthrax, but when its normal temperature is lowered it becomes readily susceptible; a similar readiness to develop this disease occurs in the adult white rat when it is over fatigued. I look upon the immunity to pneumonia which numerous human beings possess as a very relative term; and, therefore, those who possess such immunity should not ruthlessly destroy it.

Alcohol is a strong predisposing factor, a factor which not only increases the incidence of the disease, but also immeasurably lowers the resisting power of the individual, and so increases the mortality rate. On the other hand, it must be said that gouty individuals who eat well and drink moderately, or perhaps rather freely, are not particularly prone to the disease, and the mortality in their cases is low. An excessive amount of lime salts in the blood and tissues greatly increases the resisting power of the individual, and so both lessens the incidence and the mortality. A lay friend of mine maintains that the general death rate is lower in districts supplied with hard water than in those where the water is soft. This is not a point which I have myself studied, but it might be worthy of the attention of Glasgow and Liverpool, where the water is exceptionally soft. Personally I am not inclined to recommend this method of preventing disease strongly, except within well defined lines, as in escaping Scylla you might fall into Charybdis.

PREVENTION

The way to prevent pneumonia is to increase the resisting power of the individual; hence you should encourage temperance or even total abstinence, and the avoidance of all debilitating agencies, such as undue exposure, over fatigue, work in an insanitary, stagnant, moist atmosphere. There should be an abundant supply of fresh, moving air night and day; the body temperature should be maintained by a proper supply of food, and there should be suitable external clothing to assist the regulative mechanism of the body in maintaining and distributing the heat which it has generated. A fever patient may be packed in ice so long as the temperature is high, but if this treatment be continued after the temperature has fallen to normal you quickly get congestion and edema of the lungs.

A corpulent individual is not particularly prone to the disease, but a fat, flabby man, perhaps with a heart infiltrated with fat, and who gets out of breath on the slightest exertion, has a very poor chance when he develops an attack of pneumonia. People should be encouraged to develop muscle rather than fat by plenty of outdoor exercise.

Any septic condition of the mouth increases the virulence of the pathogenic organisms, and so a foul mouthed individual is usually a greater danger to himself than to others. The mouth should always be kept perfectly clean and as aseptic as possible, and the teeth in good order. The nasal passages and throat should be kept clean with some simple oily preparation, such as pure liquid paraffin, as they are frequently the paths of infection for pneumonia, rheumatic fever, influenza, diphtheria and cerebrospinal fever. As many of the microorganisms which induce pneumonia may be introduced by other paths than the respiratory passages, all sources of pulmonary infection should be obviated. A cool bath each morning and physical exercises improve the vitality and general resisting powers of the individual. Leonard Hill has recently shown that the depressing effects of crowded rooms are more due to the stillness and moisture of the atmosphere than to the carbonic acid; hence the air should be kept moving, and the drier it is the better. I have seen a case of bronchitis almost drowned in his own secretions rapidly cured by raising the temperature of his bedroom and drying the atmosphere.

Pneumococcal and influenzal vaccines, introduced by Sir Almroth Wright, act not merely as curative but also as preventive agents by establishing an artificial immunity. In apoplexy and hemiplegia the patient frequently succumbs to an attack of pneumonia, and this can be obviated by a proper vaccine and by keeping the mouth clean. Many of the terminal pneumonias might be thus prevented. After a severe chill, or prolonged exposure and fatigue, the individual should have a warm bath, be put to bed in a warm room, and have warm liquid nourishment; whiskey and hot water is a favorite remedy, but a bowl of hot gruel or a cup of hot coffee would have a more beneficial effect.

TREATMENT

A common cause of the high mortality from pneumonia is the lack of proper early treatment, often owing to the fact that some medical men take two or three days to diagnose the disease, and then call it congestion of the lungs, and treat it cavalierly as a matter of no great importance for fear of frightening the patient, until the unfortunate individual is too ill to be frightened by anything. In

my opinion, if pneumonia were early recognized and properly treated, the mortality would be greatly lessened.

A few years ago a young friend was dangerously ill in the South of England with one of the worst attacks of typhoid fever I have ever seen, and his condition was not improved by the fact that he had been treated as a case of influenza for the first ten or twelve days of his illness. I was with him many days and nights, and one night he almost succumbed to an attack of acute pulmonary edema; there was just a flicker of consciousness left, his breathing had almost ceased, except for a few short, shallow gasps, and a nurse was kept busy wiping away the frothy fluid which welled out of his mouth. By continually shouting at him to breathe, mechanical stimulation of his respiration and the free administration of atropine, he pulled round. Three days afterward, on a Sunday, he showed signs of a commencing pneumonia which I thought was pneumococcal from its somewhat abrupt onset in the middle of the fever. I wired for some pneumococcal vaccine, took a swab from his throat, with which I returned home that night, and told the medical attendant that he would have my report by wire in the morning, before the vaccine could arrive. I found pneumococci, and the patient had several doses of vaccine, which contributed to his recovery.

The treatment of pneumonia was the battlefield of contending schools of thought for the greater part of the last century, and yet the death rate has not materially decreased. In some respects our forefathers had the advantage over us in that they agreed to bleed, starve or stimulate their patients; but now we have arrived at the "do as you please" period, so that there is no uniformity. The excessive bloodletting in the early part of the century led to a revulsion in favor of the expectant and supporting treatment of Hughes Bennett and the noninterference of Skoda and Dietl. Yet it is highly probable that the mortality during the active period of adult life was not greater under the antiphlogistic treatment than it is in the present day. In the presence of a disease with a high mortality neither the public nor the profession were content to do nothing, and then followed the very pernicious system of Todd, who dosed his patients with huge quantities of alcohol, a practice which, in a somewhat modified form, has been perpetuated, I regret to say, to the present day. Then came the antipyretic treatment, which, as carried out by Jürgensen, von Ziemssen, Liebermeister and others, had definite objects in view, and was attended by a fair measure of success, but it involved too much trouble ever to become popular in this country.

There are many men who have no hesitation in prescribing such

noxious drugs as phenacetin, antifebrin, antipyrin and other coal-tar products made in Germany, who would never dream of undertaking the trouble of administering the German cold bath.

We have recently had the antiseptic treatment of pneumonia, which is as irrational as any which preceded it. The idea of attacking the pneumococcus is very self satisfying to young physicians, but I would strongly dissuade you against any such frontal attack, because the chances are 1,000 to 1 that you will not succeed; but, on the other hand, you may succeed in killing your patient. The great curse of all these systems is that the treatment is directed to the disease rather than to the patient. It is far more rational to try to increase the resisting powers of the individual, or to protect him against the ravages of the pneumococci or other pathogenic organisms and their toxins. The pneumococcal vaccine of Sir Almroth Wright is extremely valuable if used in the early stage of the disease. I rarely use more than 20 millions, and I have the dose repeated the following or second day, as deemed advisable.

A good leucocytosis in the early stage of the disease is a favorable omen, but it is not necessarily so in a late stage, when there is purulent infiltration. When there is a defective leucocytosis, the formation of a fixation abscess has been highly extolled; but I prefer a very old remedy—the application of a large fly blister. My friend, the late Sir Mitchell Banks, used to tell about an enormously big, fat, plethoric man, over 20 stone in weight, he thought was dying from pneumonia; the late James Long was called in, and he literally covered the man's back with a great quantity of liquor epispasticus, which he laid on with a large paint brush; the following morning Banks found the man sitting up in bed reading the newspaper, and he made a good and rapid recovery. Sir Mitchell Banks was not an authority on pneumonia, so I give this case with all reservations as to the diagnosis; but there is no doubt in my mind that this old remedy is too much neglected in the present day, especially where there is a poor leucocytosis.

THE CAUSES OF DEATH IN PNEUMONIA

In treatment our chief object is to cure our patients—to restore them to the *statu quo ante*. In dealing with an acute and self limited disease like pneumonia we must always recognize the fact that a large proportion of cases get well without treatment, under any treatment, and in spite of treatment, so that in, say, 75 per cent. of our cases we must not take too much credit for any line of treatment which we adopt. Yet the almost universal death rate is, in my opinion, far too high, and it seems to me that if we are to

improve our treatment we must look at the question from a fresh standpoint, and ask ourselves why do so many persons die from an acute but short specific disease? When a patient dies it is a simple enough matter to find out sufficient reasons to account for his death, but it is much better to see the danger signals ahead and try to steer the patient clear of them.

You will not infrequently meet with men who tell you that they never or only very seldom have a death from pneumonia, and they will detail some line of treatment which has long since been discarded by men of experience. You can accept as many of their statements as you like, but in my opinion the man who never sees a death from pneumonia never sees much, and his patients belong to that large class who get well in spite of treatment. Moreover, when dealing with the incidence of this disease, I pointed out the enormous disparity in the death rate in different parts of the country, at different ages and between the sexes. The severity of the disease varies much, and also the natural powers of recovery of the patients. I would like to see some of those gentlemen located for twelve months in Blackfriars, where the death rate from this disease is nearly six times that of Kelvinside.

In Children

We will now consider the classes of patients who die from pneumonia. I have referred to the very heavy mortality which occurs during the first five years of life, and more especially during the first two years. No doubt the vast majority of these cases included in the Registrar General's returns are cases of bronchopneumonia or capillary bronchitis, but yet after the second year true croupous pneumonia is not at all uncommon. The case mortality is variously stated as from 30 to 50 per cent., and I have a shrewd opinion that the bronchitis kettle is to a considerable extent responsible for this excessive mortality. This is not only one of the most useless, but one of the most diabolical, inventions ever foisted on the public; it may cause bronchitis and drown the patients, but it will not cure them. These little patients should be kept in a warm, *dry* atmosphere.

But independent of treatment, many of these little patients after a long struggle gradually succumb from failure of the right side of the heart. Why should this be? Their young hearts are healthy and particularly sensitive, so that they will not stop on a slight provocation. I have often demonstrated the effect of respiration in carrying on the circulation of the blood, and have shown what assistance can be afforded the right side of the heart by simply shut-

ting the glottis and expanding the chest. Now, if a young child suffering from laryngeal diphtheria is observed, it will be seen that the resilient chest walls cannot expand against the atmospheric pressure; the diaphragm is pulled down, but the lower part of the sternum and the costal cartilages are pushed in, so that the heart gets comparatively little assistance from the respiratory pump. In capillary bronchitis and pneumonia, where there is little variation in the dimensions of the lungs between expiration and inspiration, the same conditions apply, though to a less extent.

The situation of the heart, where the soft cartilages are easily pushed in by the atmospheric pressure, prevents the blood vascular cavity from obtaining much relief. Moreover, the stomach and bowels are frequently so much distended with gas, owing to too much food of an improper quality, that the diaphragm has got very little play, and thus the respiratory pump is still further thrown out of gear. However, there is one point in favor of these young children, and even of those of less tender years, suffering from pneumonia; their inspirations may appear short, shallow and catchy, but there is frequently a considerable pause between the end of inspiration and the commencement of expiration, which enormously assists the pulmonic circulation.

In Adults

In children after the age of 5 years with strong chest walls, and in young adults, the surplus vital capacity, even when a whole lung is involved, is usually sufficient to tide the heart over its difficulties until resolution takes place. In women—and especially in pregnant women—the vital capacity is less and the case mortality, *caeteris paribus*, is greater than in men. With advancing years and rigid chest walls there is a gradual failure in the respiratory pump, and a corresponding increase in the death rate. However, there is a great difference in individuals, and some spare men keep a good pump even up to old age. In very old people, as was pointed out by Sir William Gull, pneumonia is frequently a mode of dying, and they die as comfortably from it as from any other disease. However, I am convinced that a good many terminal pneumonias might be obviated or cured by the timely use of a vaccine. Many patients cannot expand their chest owing to a pleuritic stitch, but if they partly empty it, by groaning or otherwise, they get the advantage of the respiratory pump during the succeeding inspiration. They should be induced to hold the chest expanded at the end of inspiration for a short period, and for this purpose it is advantageous to lay hold of a rail above the head with both hands. I know a big,

heavy man who dislocated his humerus by this maneuver, but, notwithstanding the accident, he avers that he owes his life to this assistance to his respiration and to semistarvation.

The big, plethoric, pot bellied man often succumbs rapidly to an attack of pneumonia. How is this? Such men are not particularly prone to the disease; the pneumococcus has no special predilection for fat; the disease is not more intense than in lean persons, except that the nonconducting layer of fat is apt to maintain a higher internal temperature, and if the temperature be high, it is more difficult to reduce, but in these cases the temperature is usually not very high, because the primary failure is in the fatty infiltrated heart.

Their vital capacity is poor and the respiratory pump is easily thrown out of gear. The best treatment for these individuals is prophylactic; you should start months or years before the attack to reduce their "corporations" and strengthen their fat, flabby right hearts. However, when you are dealing with the emergency, the vascular tone must be maintained, and in most cases pituitary extract does much good; there must be no overloading of the vascular system; the lime salts must be given freely; the respiratory pump must be kept in action; the stomach and bowels must be kept unloaded and no distension permitted; the diet must be very simple and light, such as syrup of glucose or sugar of milk. There must be an abundant supply of cool, *dry* air, and there should be some counterirritation with a mustard poultice or fly blister; of course, a vaccine should be administered at the earliest moment.

There is many a spare individual with a fatty, degenerated right ventricle, but with a good respiratory pump, who goes about his ordinary business for years with an extremely irregular pulse, and a barely perceptible first sound over the right ventricle. Of course, such patients are apt to succumb to any acute illness, but it is sometimes marvelous how their good respiration carries them safely through a mild attack of pneumonia. Early recognition and prompt treatment is required in such cases.

Patients suffering from emphysema are not good subjects for pneumonia, but the right side of the heart is usually hypertrophied, and does not stand in much need of respiratory assistance, so if there be no accompanying bronchitis it may suffice for a pneumonia of one lobe.

In diabetes there is frequently much emaciation of the muscles, a feeble respiratory pump and weak heart, conditions which favor a fatal termination.

In advanced kidney disease there is uremic poisoning and a

tendency to pulmonary edema, indicative of right cardiac failure. Both acute and chronic alcoholism lead to cardiac asthenia, and the frequently associated abdominal distension interferes with the respiratory pump; so such cases are liable to rapidly succumb from cardiac failure, accompanied by a large *antemortem* clot in the right side of the heart. The case is quite different with the gouty individual; his heart is usually hypertrophied and healthy; and, if there be no kidney mischief, he stands an attack of pneumonia well.

CARDIAC FAILURE

There are certain cases who have got no innate power of recovery, and who seem to fall victims to the intensity of the poison, but the vast majority of the deaths are due to cardiac failure arising from want of proper assistance, owing to a defective respiratory pump. Mere carbonic acid poisoning is scarcely ever a cause. In bad cases of emphysema with bronchitis the patient is often livid for weeks, but so long as the right heart does not fail there is no danger from the mere lividity.

It is true that in carbonic acid poisoning there is a general rise in arterial pressure and secondary overloading of the right side of the heart, but in pneumonia this sequence is prevented by the vasomotor paresis. The overloading of the right side which takes place is due to failure of the heart and of the respiratory pump. At the very commencement of an acute pneumonia, with a severe stabbing pain in the side, the patient's face is often extremely purple and congested; this is not due to any obstruction in the lungs, as is shown by the large, full, bounding, relatively high tension pulse, but arises from the fact that the patient cannot use his respiratory pump owing to the sharp pleuritic pain. These are the cases where the removal of 10 to 20 oz. of blood from the arm affords immediate relief, but, *cui bono?* A good dose of opium or opium and antimony has a similar salutary effect by relieving the pleuritic pain, and enabling the patient to put his pump in action.

Cardiac failure is the proximate cause of all cases of somatic death; anyhow, we would scarcely say the patient was dead until the heart ceased to beat.

What are the causes of cardiac failure in cases of pneumonia? A certain number of hearts have such degenerate coronary vessels and muscle walls that they fail under the slightest stress, or cease to beat under any marked inhibition. We are never likely to be able to prevent such deaths unless by prophylactic measures. The large majority of hearts, however, make a desperate struggle for continued existence. The failure takes place from:

(a) Granular degeneration of the muscle fiber induced by continued high temperature and by toxemia.

(b) Low arterial pressure, which prevents proper nutrition of the heart, while this organ gets exhausted pumping blood into unfilled vessels.

(c) Any interference with the proper action of the respiratory pump leads to overloading and ultimate failure of the right side of the heart.

(d) The toxemia leads to loss of muscular tone and dilatation of all the cavities of the heart.

(e) Extensive lung consolidation.

Our indications for treatment, therefore, are (1) to lower the temperature and control the inflammatory process at the earliest possible period, before stagnation of the blood and hepatization have taken place, and thus preserve as far as possible the integrity of the respiratory apparatus; this also lessens the risk of involvement of the nutritive vessels of the lungs; (2) to maintain fair systemic blood pressure; (3) to keep the respiratory pump acting by lessening the frequency and increasing the depth of the respirations; (4) remedies to lessen the toxemia and maintain the tone of the cardiac muscle; (5) methods to lessen the spread of the mischief.

The Reduction of High Temperatures

Whatever means be adopted for dealing with the temperature of the patient, it should be kept within moderate bounds, as high temperature leads to granular degeneration of the heart muscle, sleeplessness, delirium and nervous exhaustion. It is often sufficient to keep the patient very lightly clothed—a single sheet over the body, with a blanket over the lower extremities—and thus allow free evaporation of the sweat, which carries off a large amount of latent heat. All eiderdowns, cottonwool, waterproof and every impervious covering should be avoided; cold or tepid sponging is very comforting to the patient. I am a firm believer in the danger of continued high temperature, and I have used many methods to control it, such as cold sponging, the application of ice to the affected side, ice cradling, the abstraction of heat by radiation with black semicircular ice tins over the patient, by evaporation with large moist, cool poultices and compresses and by convection with currents of warm, dry air.

The Abdominal Ice Bag

In the beginning of 1900 I introduced the abdominal ice bag in the treatment of this disease, and I have continued its use ever since

in all cases of high temperature, with the best results. The abdomen affords a large cooling surface, and it occurred to me that one or more ice bags sufficient to cover the whole abdomen would lower the temperature, and, from the action of the cold on the splanchnic area, would raise the general arterial pressure, would lessen the distension of the abdomen, and finally increase the depth and lessen the frequency of the respirations. This was no simple theoretical speculation, because I had long previously used this method for reducing the temperature in typhoid fever, and I had observed the above effects times without number. Moreover, the abdomen is not very sensitive to cold, except the groins, which can be easily protected by a little cottonwool, and so this method of treatment is not particularly uncomfortable to the patient.

I had thought this plan well out and was quite ready to give effect to it, when, on January 3, 1900, my house physician, Dr. Alderson, telephoned to me that he had admitted two severe cases of pneumonia, both of whom were so violently delirious that they could not be restrained in bed. The results in these two cases were remarkably successful and were a happy inauguration of this line of treatment.

Maintenance of the Systolic Blood Pressure and Ventilation

It is most important to maintain the tone and tension of the vascular system, otherwise the nutrition of the heart fails, its cavities dilate; the large vessels hold an inordinate amount of blood and the heart gets exhausted in its attempt to carry on the circulation. The lime salts are the best agents in maintaining cardiac and vascular tone; digitalis has not much effect when the temperature is high, and strychnine has no marked effect on the blood pressure and is apt to exhaust the nervous system, so should be reserved for a late stage of the illness. Adrenalin, pituitary extract and strophanthin are often very serviceable.

You should avoid everything which would depress the nervous and vascular systems, such as a dull, dismal, badly ventilated bedroom, a moist, overheated atmosphere and alcohol. The room should be the best in the house, and if possible should contain at least 1,000 cubic feet for each occupant, and the whole air of the room should be changed three times every hour. There is no difficulty whatever in freely ventilating a room. Feverish patients do not catch cold, so that bugbear may be set on one side. Night and day a stream of pure air should be admitted without creating draughts. I usually throw a window widely open. The play of fresh air about the patient stimulates respiration and exhilarates

him. Dr. W. P. Northrup, of New York, has treated patients with pneumonia on the open roof of the hospital for six hours a day, "in all weather, when harsh, high winds, rain and snow did not prevent." This may do for New York, but I am certain it would not suit Glasgow or Liverpool. A cold, foggy, moist atmosphere would materially lessen the patient's chances of recovery. The atmosphere of the room should be maintained about 60° to 65° F., by a large fire. The ordinary atmosphere at this temperature is not saturated with moisture, and is, therefore, capable of holding the patient's exhalations, and there is not much danger of him drowning in his own excretions. I have never found the atmosphere in this climate so dry as to require any additional moisture.

As long as a strong light or radiant heat from the fire is not playing on the patient's face, the more bright and cheerful the room the better. I do not believe in converting the bedroom into a dark chamber, which makes it difficult for the patient to distinguish day from night, and is apt to give him the impression that he is cast into outer darkness. If the patient has a comfortable night, he will not require much sleep during the day.

No one can survive long without oxygen, but there is more in the air than the blood can take up; in fact, the atmosphere only loses 4 of its 20 per cent. in the process of respiration. Of what necessity or value, then, are the cylinders of oxygen largely used in this disease? Of what value are 20 to 60 cubic feet of oxygen compared with 72,000 cubic feet of fresh air with which each patient should be supplied every twentyfour hours? The public craze for oxygen has not yet died out, and medical men are often too apt to pander to the popular demands. Many men readily acknowledge that they have never seen any life saved thereby, but the public want oxygen, and oxygen they get, on the supposition that it cannot do any harm; just in the same way many prescribe a teaspoonful of brandy every four hours because they say it can do no harm and may please the patient's friends. Our prescriptions should not be placebos, but we should diligently inquire respecting all our remedies. Will they do any good? Let us see on what scientific basis, if any, this expensive luxury of oxygen rests, and more especially so as it can be had in as pure a state in the atmosphere for nothing. The nurses, perhaps the patient, and the patient's relatives, will tell you that the free supply of pure oxygen affords great relief and makes the patient breathe more easily. This may seem to some an unanswerable reason; but it is not merely the patient's comfort, it is his recovery we are after.

I have again and again pointed out the great value of the respira-

tory pump in carrying on the circulation, and if the patient's breathing becomes easy and shallow, the pump is thrown out of action. You want to make the patient breathe as deeply as possible, and this is encouraged by a stream of air playing on the patient's face. I have often used for this purpose a foot bellows; an electric fan is very serviceable. Every one knows how rushing through the air in an open motor car makes you breathe. Carbonic acid is the natural stimulus for the respiratory center, and in cases of pneumonia the stimulus should be in constant action, but when you freely supply oxygen to the air cells the red corpuscles do not necessarily take up more oxygen, but the carbonic acid tension in the blood falls, the respiratory center does not receive its necessary stimulus and the heart is handicapped; thus the comfort of the patient is at the expense of his vitality.

Dr. Yandell Henderson has shown how hyperpnea may so reduce the carbonic acid in the blood—a state which is called acapnia—as to induce fatal apnea. Fortunately, it is not very easy to produce this condition in pneumonia; but it is just as well to keep the patient breathing as long and as deeply as possible, as he can die “from want of breath” just as readily as from “failure of the heart's action.”

I suppose you are all familiar, and if not you should be, with the excellent work of Dr. Ernest Thomson, of Glasgow, on the “True position of oxygen as a restorative in carbonic acid poisoning.” This investigation on the subject of choke damp asphyxia was undertaken at the instigation of the Council of the Mining Institute of Scotland, and was published in the *Glasgow Medical Journal* for 1893 and 1894. He conclusively showed that in these cases of asphyxia pure oxygen had no advantage over atmospheric air. Also, “an animal may be placed in a chamber the general cavity of which contains about 50 per cent. of carbonic acid, and retained there for a long time without supervention of muscular collapse, provided a gentle stream of a respirable gas—air or oxygen indifferently—be allowed to play upon the nostrils and agitate the surrounding atmosphere.”

GENERAL PRINCIPLES OF TREATMENT

Successful treatment largely depends on early recognition of the disease, and in this respect the general practitioner has many advantages over the consultant, while in hospital cases the fate of the patient is often sealed before he arrives. If the patient can be properly treated and nursed at home, *keep* him there; but if not, send him to a hospital at the earliest possible moment; you have no moral

right to bundle him off at a later stage, when the mere movement may turn the scale against him.

We shall suppose that we are dealing with a case of pneumonia from the commencement. When you meet with a case of high fever of sudden onset without any definite localizing symptoms, do not imagine that you have got a legitimate point of attack, and begin to knock down the temperature with such drugs as phenacetin or antipyrin, or by saturating the patient with sodium salicylate. You may in this way, for the time being, lower the temperature and make the patient quiet, but you thus mask the symptoms, put yourself in a fool's paradise, prevent the early recognition of the disease, and in no way modify its course, but perhaps do irreparable mischief to the patient. You must not keep hovering between conflicting opinions as to whether the patient has got pneumonia or typhoid fever, influenza or some other disease, waiting to see what will turn up. You must be prepared to treat the individual rather than the disease. You must find out the condition of every organ of his body, and if you do this the nature of the affection will not long escape your detection. Pneumonia is a disease which varies very much in intensity, and its prominent symptoms are more or less pronounced according as the individual is robust and plethoric, or weak and debilitated. A typical case with a flushed face, rapid breathing, high temperature and a stabbing pain in the side is early recognized, but the majority of cases are not typical in their onset. In the young and aged errors most frequently occur, but with careful examination every case should be diagnosed within the first twelve or twentyfour hours. The febrile process and quickened respirations should arrest your attention. Very careful physical examination should detect a very moderate degree of lung engorgement, and thus enable you to localize the mischief. If there be a rigor, the patient should be warmly clothed and have a hot drink. In the very early stage I am in favor of a warm bath with plenty of soap, but if this be impracticable, either from the condition of the patient or the environment, he should be well washed and the action of the skin encouraged. If the temperature rapidly reach a high level, such as 104° F., the sooner a large ice bag is applied to the abdomen the better. I am much in favor of reflex stimulation; I, therefore, order a large mustard poultice to the affected side. The nerve supply to the lungs is derived from the first six dorsal segments; if, therefore, you apply a mustard poultice to the cutaneous nerves of the upper part of the thorax on the affected side as low down as about the level of the ninth dorsal spine, you produce a reflex action in the nerves supplying the lung, and thus increase

vasomotor tone. To be of any value, this must be done at an early stage; there is no use stimulating the lung when the lung is solid and the mischief done. At a later stage, however, good is often done if applied to other portions of the same lung or the opposite lung by lessening the collateral edema which not infrequently occurs. It is this collateral edema or spreading area, and not the solid portion of the lung, which gives rise to the expectoration. A few leeches applied to a painful spot on the side acts in a similar way; there is a depletion of the vessels in the vasomotor tract supplied by that segment of the spinal cord. If there be a defective leucocytosis, I apply a large fly blister at any stage of the illness.

Blood letting has not been in vogue for many years, but I have no doubt in some few plethoric cases it does good. If it be deemed advisable in any particular case, the sooner it is performed the better. It should never be adopted after the first fortyeight hours, and never at any time if the pulse be small, feeble and compressible. Pneumonia in the female is often relieved by a commencing menstruation, and an epistaxis is occasionally beneficial. If at the beginning of the disease there be a full, bounding pulse and labored respiration in a plethoric individual, you may abstract 10 or 12 oz. from the arm. Venesection should not be performed in the very young, the old or debilitated, though I once took over a pint from a lady aged 89, who was in the status epilepticus from a cortical hemorrhage. She lived till she was 95. After bleeding, the patient should abstain from fluids for some hours. The cases, however, in which venesection is beneficial are few and far between.

The expectoration should be examined and a suitable vaccine administered at the earliest possible moment. I have seen excellent results from the pneumococcus vaccine prepared by Sir Almroth Wright.

Sleep

It is important that the patient should have a fair amount of sleep from the onset; the exhaustion of the nervous system from want of sleep lessens the patient's chance of recovery. There is no objection to opium in the early stage, and two or three 10 grain doses of Dover's powder during the night often answer admirably. In alcoholic subjects a combination of opium and antimony answers well. When the lung is engorged and the right side of the heart handicapped, you should avoid all preparations of opium, as they blunt the respiratory center, or only use morphine in combination with hyosine and atropine or strychnine. If sleep has been obtained in the early stages, it is not difficult to induce it in the later.

A quiet, restful sleep tends to lower the temperature, and, on the other hand, a high temperature is very inimical to sleep. The low muttering delirium which frequently accompanies the disease is usually controlled by free ventilation and the reduction of the patient's temperature, which is best effected by large ice bags to the abdomen. The body should be lightly clothed, but the lower extremities kept warm. Pneumonia complicated with delirium tremens is a very fatal malady. It is often difficult to draw a distinction between the delirium of pneumonia and alcoholic delirium complicating pneumonia. The latter generally starts in the later stages of the illness, or, as a rule, not earlier than the third day; the delirium is active, often violent, delusions of sight and hearing, great tremor, irritability of the nervous system, while the knee jerks are usually absent.

In such cases it is essential to keep the nervous system quiet and obtain sleep, but this is often a most difficult problem to solve, especially when the delirium tremens arises late in the pneumonia attack. There must be no mechanical restraint, nor any struggling with the patient, as thus fatal syncope is readily induced. I have often seen these patients become quiet when they were allowed to stand or walk about in a well ventilated room. Under these circumstances, the fall in the blood pressure and the lessened blood supply to the brain has a calming effect. When the patient has been induced to go back to bed, if it be in the early stage of the disease, and the pulse full and bounding, or small and firm, he should have repeated doses of antimony and opium. If it be in a later stage, with the pulse small, short and feeble, and with the lungs engorged and skin very moist, a hypodermic injection of hyoscyne, morphine and atropine answers better. A few whiffs of chloroform or the A.C.E. mixture often gives the sedative an opportunity of acting. To these patients I frequently allow two pints of beer or stout in the twentyfour hours as a sedative. It is not wise to entirely cut off alcohol from a patient bordering on delirium tremens. Under no other circumstances do I prescribe alcohol in pneumonia. Alcohol does not increase the power of the cardiac muscle, but merely lessens the peripheral resistance by producing vasomotor paresis, an effect which cannot often be required, as the systemic bloodpressure is usually too low without any assistance from alcohol. It also increases the diastolic tension within the ventricles and leads to cardiac dilatation. Alcohol dries the tongue, increases the delirium, and makes the sleep more perturbed. The good effects of abstinence are well seen in those cases who have been overdosed, when you abruptly cut off all alcohol; the delirium, restlessness and parched mouth are replaced by quiet sleep and moist tongue. Dur-

ing the convalescence the patient may, if thought necessary, revert to his accustomed use of alcohol, but in great moderation.

Drugs

If the illness begins with nausea or vomiting, it is well to wash out the stomach with a few tumberfuls of hot water to which a teaspoonful of mustard has been added. The bowels should be cleared with a large dose of calomel. In sthenic cases—but such cases are the exception rather than the rule—antimony is useful. If there be much restlessness or delirium, antimony and opium is a good combination. All the coal tar products are injurious; the same may be said for sodium salicylate, as it is a decalcifying agent. In no case should an acid mixture be given at the commencement. I have long since discarded quinine as an antipyretic agent in this disease.

For limiting the spread of the disease the lime salts are the best remedy. In the acute stages of pneumonia the more scanty and more sticky the expectoration, the more viscous the blood, the more lime salts and leucocytes it contains, the more favorable the prognosis; on the other hand, the more fluid and hemorrhagic the expectoration, the more liquid the blood, the less the lime salts and leucocytes, the worse the prognosis. The expectoration comes from the spreading area, and not from the consolidated lung, hence I prefer the lime salts to increase the coagulability of the secretion and limit the spread of the mischief. Acting on these views, I have long ceased to prescribe ammonium carbonate and other expectorants during the acute stage of the disease. Those cases of creeping and influenzal pneumonia where there is no proper consolidation are very fatal. Cardiac thrombosis is more frequently a sequel than a cause of cardiac failure; occurs chiefly in the right auricle and ventricle; is due to cardiac weakness, blood stagnation, leucocytic destruction and fibrin ferment, rather than to any excess of lime salts. Thrombosis in the heart is usually a terminal phenomenon, the *antemortem* clots rarely preceding death by more than twentyfour hours; this occurrence is best prevented by maintaining the tone and contractile power of the cardiac muscles. A hypertonic serum consisting of calcium chloride, normal saline and syrup of glucose would lessen blood destruction, and hence the tendency to clot formation. I have seen clots in the heart dissipated and the patients cured by the administration of equal parts of liquor ammonia fort. and spiritus chloroformi, 5 to 10 minims every half hour.

The necessity for calcium salts in the maintenance of cardiac con-

traction and muscular tone is, perhaps, fairly well known, but the knowledge is too often neglected in the treatment of this disease. In all febrile conditions the blood rapidly parts with its calcium, and, unfortunately, it is often most difficult to get the intestinal tract to take up a sufficient supply. You must not rest satisfied with the mere administration of lime salts by the mouth; you must satisfy yourself as to whether a sufficient amount is being absorbed. A direct examination of the blood by Blair Bell's method will solve this problem; but this is troublesome, and more especially so as it should be repeated many times during the illness. I find the urine a very good indicator and very easily examined. It has long been known that the chlorides are deficient in pneumonia, but in my observations they are not nearly so scanty as the lime salts. If you find the lime salts deficient and albumin present in the urine, you may safely conclude that both the free and fixed calcium salts in the blood are deficient, and the sooner they are replenished the better. You should prescribe the soluble salts of calcium—such as the glycerophosphate, the lactate and the chloride. The carbonate is not very soluble, but it is often useful as an antacid for the intestinal tract, especially when combined with the bicarbonate and chloride of sodium. I have had good results from calcium iodide with tincture of iodine in cases of pneumonia complicating bronchitic asthma.

Somewhat similar views to my own have been expressed by Dr. Auld, who also is a Glasgow graduate. He says "that pneumonic consolidation is Nature's method of localizing the morbid process, and curing the disease. . . . Moreover, in cases of pneumococcus infection showing little or no tendency to pulmonary hepatization—when the pneumococci run riot in the organism, so to speak—the result is always grave, and indeed generally fatal." Dr. Auld informs me that "the results of his experiments on animals correspond to those observed on man. It was only in those cases where a culture of moderate virulence was employed that hepatization of lung was obtained in animals; a very virulent culture failed to give hepatization, thus showing that when the organism of pneumonia freely enters the circulating blood it prevents the pulmonary coagulation, whereas when it is capable of being localized coagulation follows. These injections were also made into the pleural cavities with the same results. The time element was also considered, as when the animal was killed after a moderately virulent culture hepatization was observed to have begun, but after a very virulent culture this feature was absent, being replaced by a sanguineous serum."

When the bloodpressure is very low and the heart dilated, I have

had good effects from the intravenous injections of small doses of adrenalin, but these have to be very frequently repeated, and I now prefer a hypodermic injection of 1 c.cm. of pituitary extract every eight hours. This also lessens the abdominal distension. In these cases it is also well to make use of the cardiac reflex of that versatile genius, Albert Abrams; the nurse should be taught to frequently apply mediate percussion over the seventh cervical and first dorsal vertebra, and she should also use friction with her hand over the heart. Strychnine, caffeine and digitalis are often useful; when the pulse is extremely frequent an intravenous injection of 1/240 to 1/120 grain of strophanthin will be found serviceable. When the febrile process is over it is well then to use some medicine to lessen the viscosity of the blood and liquefy the effusion in the alveoli, such as ammonia, sodium citrate, ammonium citrate, citric acid, lemon squash, etc.

If the lung pass into the stage of gray hepatization with purulent infiltration, or there be an abscess or gangrene of the lung, you should freely administer terebene or some of the turpentine series. In these cases the infection is usually very mixed, and the inflammatory mischief has been so intense as to involve the nutritive vessels of the lungs as well as the finer branches of the pulmonary artery supplying the affected area. I have seen good effects from tincture of iodine and calcium iodide in these cases. An autogenous vaccine may also help resolution. During convalescence some tonic is required and a liberal diet.

The teeth, tongue, mouth, and even the nose, should be kept clean with some antiseptic during the illness. The importance of keeping the mouth clean as a preventive measure is well exemplified in the so called ether pneumonias, which are due to the aspiration into the trachea and bronchi of foul secretions from the mouth. Before the administration of an anesthetic the mouth should be well cleansed with some strong antiseptic. Pure brandy or whiskey answers very well, but this mouth wash should not be swallowed. An excellent mouth wash can be made with formalin, glycerine, carbolic acid and eau de Cologne.

Diet

One of the greatest difficulties in private practice is to control the diet; the public have been educated in the belief that great quantities of nourishment and stimulants are necessary, and too frequently the regulation of the diet is left to the nurses and relatives, consequently you frequently find the abdomen enormously distended with flatus, which prevents the free play of the diaphragm. The medical atten-

dant should not move along the lines of least resistance, but carefully consider every point in the interests of his patient. There is usually a paretic condition of the intestinal tract, and any food decomposition is apt to give rise to acute dilatation of the stomach and bowels; when this occurs, pituitary extract is the remedy *par excellence*. There is scarcely any anabolic change going on during the febrile stage, so there is no use in troubling the patient with large quantities of nitrogenous food, which are not required and are only apt to form poisonous ptomaines. It is a great mistake to worry the patient with much food during the first three or four days of illness, and it should be very gradually increased as the patient seems capable of digesting it. It is not what you put in the patient's stomach, but what he assimilates, that proves of any value. A good combination consists of an infusion of half a pound of raisins in a quart of hot water with three or four ounces of syrup of glucose, two drachms of sodium chloride, and half a drachm of the glycerophosphate or lactate of calcium. The patient can drink this *ad libitum*.

Milk is an excellent item in the diet, but it is not always easily digested, and consequently it should be well diluted; it should be boiled to get rid of the *Bacillus coli* and other organisms. The following will serve an adult in the acute stage for twentyfour hours: About two pints of milk, two or three pints of barley water, whey or plain water, six or eight ounces of syrup of glucose, four or five drachms of table salt and one drachm of the glycerophosphate of calcium.

If the syrup of glucose be too sweet or mawkish, a quarter of a pound of sugar of milk can be used. Later on the patient can have peptonized bread and milk or some infants' food, broths, raw eggs, jellies, cocoa or coffee, and a few biscuits. He can have cold water when he likes; you can wait on the desire of the patient for solid food. Be always careful that the bowels are not loaded or distended.

In conclusion, I wish strongly to impress on you that pneumonia should always be looked upon as a serious disease; remember that no matter how mild the case may at first appear, you cannot always forecast how it may develop, and every medical man, in dealing with this affection, should feel the responsibility of a human life in his hands. It has been said that young men kill their patients and old men allow them to die. I wish you to take a different course and direct them into a harbor of safety. Early recognition and prompt treatment will save many a valuable life.

"ANATOMICAL PRUNING"

A Reply to "Prepuce or No Prepuce"

BY GUSTAV F. BOEHME, JR., B.S., M.D.

New York

"When one starts out to prove a thesis he can generally prove it, to his *own* satisfaction at least. All it is necessary to do is to overlook or minimize the importance of the *facts* contradicting the thesis and to emphasize the importance of those facts which *seem* to favor it. Of course, I do not mean to imply that Dr. Boehme [and I am here tempted to insert "Dr. Robinson"] deliberately adopted such tactics, but there is a certain kind of unconscious bias against which one is frequently powerless."

It was with much interest that I read these lines, and those which followed, assailing my article on "The Rôle of the Prepuce in Disease," and I could not but feel how truly Dr. Robinson's words, quoted above, apply to the article which he has written in apparent refutation of my statements.

In the first place, had he read closely he would have noted the following sentence: "It is not the purpose of this paper to enter into the discussion of venereal or dermatological conditions." This should remove at once from discussion the treatment of chancres, chancroids and gonorrhea. As the doctor, however, chooses to draw me into this field, I would hold that, where necessary for proper treatment, proper steps should be taken, and if this means circumcision, do so—when it is necessary.

His main theme seems to run somewhat like this: One might, perchance, acquire venereal infection; that infection might be complicated by an abnormal prepuce (for note he says, "Behind a narrow prepuce"—and again, "Nor will any one deny that phimosis and occasionally paraphimosis become formidable complications," etc.)—therefore, as both these possibilities might exist, remove the prepuce—normal or otherwise. In other words, the position that he seems to take is that because it is difficult to cure a certain possibly acquired disease with certain normal conditions present, remove those conditions in advance, because the patient might acquire this disease.

I do not believe I carry the simile much further if one should reason with him as follows: Conjunctivitis, gonorrheal or otherwise, is difficult to cure because of eye-lids (and physiologically the simile is apparent—the eye-lids protect a delicate eye, as the prepuce protects a delicate glans; the eye-lids retain a secretion

about the eye-ball, as the prepuce does a normal moisture about the glans)—therefore, as our patient *might* acquire these diseases—and who has not had tremendous difficulty in treating a gonorrheal conjunctivitis, a diphtheritic inflammation—would it not be wise to remove the greater part of the eye-lids before such disease might occur? The eye-ball in time would become more resistant to infection, and, *mirabile dictu*, an ideal condition for the ophthalmologist is created.

But we might proceed even further—and perhaps even more logically. One might acquire an attack of appendicitis. What organ, according to “evolutionary biologists,” is more of a “mistake of Nature” than this little vermiform process? Arguing with the doctor, would it not be advisable to remove the normal appendix as soon after birth as possible, thereby avoiding the possibility of an attack of acute appendicitis? Perhaps this may be his viewpoint—but for my patients, at least, a more conservative course will be pursued—and save for argument’s sake, probably so for the doctor’s.

Tonsils may or may not be pathologic. Does the doctor argue that because there may occur a tonsillitis, that every tonsil should be removed?

And so one can go on, *ad libitum*, trimming the human body to suit one’s own ideas of preventing “disagreeable and *at times* dangerous complications.”

“From individual cases we can pass over to entire races,” says the doctor. It was not the province of my paper to discuss syphilis or *racial immunity*—suffice it to say that this seems to be one of those evidences of “emphasizing the importance of facts” which seem to favor one’s viewpoint. He apparently would have us draw the conclusion that because the Jews are circumcised they have less syphilis. But, as he rightly points out later (unconsciously), the same conclusions should hold true for other venereal conditions, if this be the fact. As he says, “If it did” (meaning superior sexual morality—and equally applicable to circumcision), “we would find the same lower incidence in reference to gonorrhea, which is not the case.”

In his next paragraph the doctor states “that the nation that has been circumcised for centuries is the fruitful nation *par excellence*.”

Again we find “that certain kind of unconscious bias against which one is frequently powerless.” Some one recently said that “statistics seem to have been invented to conceal facts,” and here, apparently, the doctor has been misled by the seeming “greater fruitfulness of the Hebraic race. For comparison, similar ranks of

mankind must be chosen. Given a poor, low-grade Italian family, an uneducated Polish one, a German family of the same type—and do they number less in their Rooseveltaria propensities than a similar Hebraic family? Again, compare the second and the third generations of each, and one has in this enlightened country the typical American family of two or three, no matter what their race. Again, in comparing, is it fair or just to compare the “East Side” and the “Slums” with “Fifth Avenue” or “Riverside Drive”?

“The prepuce, therefore, does not seem to be necessary to either ‘stimulate’ or ‘assist in’ the sexual act.” The physiologically and histologically true statements are ignored in the article before me—we do not meet on common ground.

I hope I may be pardoned a few elemental definitions. “Balanitis (*βάλανος*, a gland) is an inflammation of the surface of the glans penis. Posthitis (*πρόσθη*, the prepuce) is an inflammation affecting the mucous surface of the prepuce chiefly.” (Keyes.)

“Balanoposthitis—an inflammation of the glans and prepuce.” (Dorland, Lippincott.) Necessarily, therefore, in a circumscribed individual there can be no balanoposthitis—in this Dr. Robinson and I thoroughly agree—for without a prepuce the prepuce can certainly not be inflamed. Certainly, I have seen, and so have others, a simple balanitis in the circumcised—diabetes, dirt (and in a late article, Lichen Planus even) may affect the glans. True, it is rarer than in the uncircumcised. But, again, etiology must not be forgotten. The better authorities divide the causative factors up somewhat as follows:

1. The exciting causes—and here are mentioned, in order, dirt, decomposing smegma, leukorrheal, gonorrheal and vaginal discharges: gout and contact with diabetic urine.

2. The constitutional causes (contributing causes) as follows: a long, tight prepuce, a small orifice, a short frenum.

Considering them in order, dirt, smegma, leukorrheal, gonorrheal and vaginal discharges, and even irritation of the diabetic urine (when the prepuce is normal), are preventable by—and here I quote my original paper—“cleanliness.”

For the proper prophylactic treatment of contributing causes, I must again refer to my original paper: “For the remaining abnormalities the operator [and note, I say operator] should employ conservative methods.” In other words, no where in my article have I said never circumcise completely, or partially. I have merely called for the proper treatment of anomalies, and have decried routine circumcision.

The systemic conditions predisposing to balanoposthitis should

be treated systemically *secundem artem*—and if local procedures are necessary they should be carried out.

And now I must repeat again my former dictate—"Leave a normal prepuce alone." It has its functions; they are definite; "evolutionary biologists may have ceased to worship the fetich of Nature," yet here there is no mistake in leaving a normal condition to protect man as is best fit. Again I reiterate, *teach proper sex hygiene—teach venereal prophylaxis*—and don't operate for conditions which *might* occur. If abnormalities be present, treat them properly, but "*leave the normal alone.*"

Dr. Robinson and I do not agree. So let it be. One can trim the human body to suit one's liking. I believe some advocate the removal of the small toes—the great toe is the only one we really need—and corns are so inconvenient! Let us, therefore, disagree—the profession can best judge for itself. I do not care to reopen the topic, as I believe I have made myself clear. Like the Indian in his council, I now exclaim, "I have said."

COMMON DRINKING CUPS, ROLLER TOWELS AND THE FREE LUNCH FORK

Attention having been called to the fact that the New York Board of Health regulations with respect to common drinking cups and roller towels are not being observed as they should be, Commissioner Goldwater is taking steps to secure fuller compliance with the department regulations. Letters have been sent to those found violating the sections of the Sanitary Code with respect to drinking cups and roller towels, warning them that a continuance of the offense will render the offender liable to arrest and prosecution.

In this connection it may be stated that the department is also contemplating action against the use of common forks at the saloon free lunch counters. Investigation has shown that forks, used by one person in eating, from a common dish, food such as hash, potato salad, sauerkraut, etc., are returned after using to a glass containing some cold water only, to be picked up and used in the same way by succeeding persons. This very personal tool thus comes into more or less intimate contact with the saliva of the mouth and the mucous membrane of the tongue and lips.

In view of the fact that disease-producing bacteria, some of them a most virulent kind, may be present in secretions of the mouth and throat, it is deemed important to prohibit this common use of such eating utensils. In an examination of the common barroom fork, undertaken some time ago in Louisville, disease germs were found in thirteen out of sixteen specimens examined. It is suggested that the food at such lunch counters be prepared beforehand in the form of sandwiches, etc., and handed out to the individual, or else each customer be given food on a plate with individual utensils, and that these utensils be thoroughly washed after using.

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JOHN W. WAINWRIGHT, M.D., EDITOR

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EDITORIALS

THE RELATION OF FOOD TO FUNCTION

We read in medical literature, as well as in the popular magazines and lay press, that in order to be healthy and attain long and useful lives, we should restrict our food to the minimum in quantity and to certain kinds. Meats, especially the substantial red meats, should be cautiously indulged in. Stimulants studiously avoided. That fruit, cereals, milk, with buttered toast, and eggs, should constitute our breakfast; a soup, restricted to those with very little, if any, meat, bread and butter with fish and vegetables for luncheon and two to three ounces of a roast, preferably white meat with vegetables, bread, butter and a demi tasse of coffee for dinner. Others restrict the daily intake of foods to vegetables with milk, butter, cheese and eggs. Is this, however, a proper diet for an active individual? It is true that those leading sedentary lives, those whose activities are mental rather than muscular require less substantial, muscle forming foods than he who is mostly outdoors, those who because of muscular activity require a stronger diet, such as is needed to repair the waste from a more active life. But is it not exceptional that men in good health lead a sedentary life. Observation on our busy thoroughfares in the city at noon or at the close of business will convince any one that there is a superabundance of muscular activity and in the vast majority of individuals, both male and female, good health and spirits. Surely this results largely from a generous

mixed diet. No sight is more exhilarating to one's spirits, conducive to one's appetite, helpful to the duties of the day, with congenial mind than a good substantial breakfast: fruit or mellons, a modicum of steak, or a chop; sweet ham or a rasher of bacon with eggs, good warm bread, clean sweet butter and a cup of delicious coffee, particularly if followed by a brisk walk with deep breathing for a few blocks. Stand on the street corner of a bright morning, watch the elastic springy step, the bright eye, the fresh and clean complexion of the passers by and know that each one has had a satisfying breakfast. Contrast these with the few whose expression and gait is proof of a restricted diet because of illness or unhygienic conditions; possibly of lack of means. There should be temperance in all things, but temperance does not mean starvation or lack of proper care of one's self.

How many of our troubles are preventable by a proper hygiene, prophylaxis and wholesome diet. How many gastric and intestinal disturbances are due to a restricted diet, a diet of carbohydrates, articles of food which leave no residue for exciting functional activity of the intestines, more particularly the colon. Without the coarser foods to distend and stimulate the colon, follows constipation with its accompanying fermentation, putrefaction and resulting toxemias, and thus a series of afflictions. Exercise is needed, but one does not need to work with pick and shovel to get wholesome exercise. Calisthenic exercises in the home without apparatus, if needs be; deep breathing and brisk walking out of doors is sufficient if daily indulged in. The life of the well fed and cared for dweller in the city is a greater pleasure, while the joy of living is more in evidence than that of he who lives mostly on a restricted diet, he who wants these accompaniments so needful to a well rounded life of the times.

Let have done with the fads and follies of special diets, indulge in exercise, temperance and common sense in all of our doings, cultivate pleasant companionship and relations to our family and friends; live hygienic, pure lives and reap the reward in a clean and healthful existence.

ABOUT DREAMS

The subject of dreams has taken on new interest since the psychoanalytic ideas of Freud. Perhaps no movement in medical science has been the cause of so much discussion, of so many essays in recent times, but the subject is to most of us still a closed book. Whether physiological or psychological studies will ever unravel the mystery of dreams is yet as much a subject for learned discussion as in the times of the ancient philosophers. That the theories of the Freudian school have cleared up the mystery has not as yet been accepted. The latest lance to enter the lists of dissenters to Freudianism is Meyer Solomon of Chicago (*Medical Record*, January 31, 1914).

Briefly, Freud's ideas are that for every psychic state, for every idea in the dream there is a logical and efficient antecedent causative mental state in the present life of the individual, and of more or less intimate significance to the dreamer. But Dr. Solomon contends that this mental state cannot always have occurred in the present life history; that the evolutionary life history must be taken into account; and although all thoughts, tendencies, activities and reactions have a valid cause which occurred in the past, that these states, even when closely related and of similar nature, do not necessarily show a cause to effect relationship between past and present experiences, nor is a special intimacy to the individual indicated by the appearance, due to association of any of these. Again Freud claims that dreams express wish fulfilment. But instead of wish fulfilment is not self expression the real driving force. That instead of Freud's theory that the sources of dreams are always unconscious, and of infantile origin and usually of a sexual nature, that the basic sources of origin of dreams are thoughts, tendencies, activities and yearnings of a varying life history both as to age and intensity. Dreams are not primarily of infantile origin, for recent experiences, presleeping thoughts and various somatic and external stimuli play a most important rôle in dream content and formation. Consequently, any one or more of our instincts may be the root of the dream, and not necessarily at all related to sex nature or instinct.

Sleep is an instinct, a biological and physiological defense against fatigue and exhaustion and is characterized by a certain degree of

consciousness, lower in the scale of mental evolution than in the waking state. Reasoning, judgment, logical and orderly thinking are greatly lessened; creative activity is slight or absent. There is a return to free play of our instincts and emotional strivings, the material being furnished by the past mental content or make up of the dreamer. Repressed ideas may make their appearance, but they are brought into play in exactly the same way as are insignificant ideas. Dream thoughts run the gamut of possible variations of like conditions occurring in every day life. They vary from simple to complex; from clear and definite to vague and indefinite presentations; from brief, direct, clearly remembered to the long, circuitous, hazy insignificant; from recent experiences to early childhood material, from recent heart pangs, wishes, fears, disappointments and cravings to the instinctive personality of the dreamer, as numerous and changeable as are our feelings, emotions, sentiments, passions and moods. And we would add as elusive as the summer breeze.

He who would make an ultimate analysis of dreams, must have a greater insight into man's psychic than a belief that their origin is sex nature or instinct.

THE MONTH OF FEBRUARY

Some considerable number of years spent on earth together with a constitutional habit of observation inclined us to caution numerous of our friends not to too hastily conclude that winter was over; that because we had not experienced discomforts from cold here in New York City during December, January and almost the whole of February, that we had escaped a rigorous winter and that we might as well get out, air and repair our lighter weight clothing preparatory to changing for the cumbersome apparel worn during the winter. In proof of our hindsight—for we were arguing from past experience—here comes a blizzard on the night of February 27th. Wind, snow, cold, and worse on March 1st; something like twenty four inches of snow in two days. Street cars useless, traffic suspended, and provisions and fuel scarce.

Spencer pictures February as "sitting in an old wagon, for he could not ride." A faithful likeness of a season in its tyranny and

decrepitude. He is not a favorite and he was determined that if he could not win affection he would strike dread. "He is a terrible old man; not an old man in a hurry."

In February winter is the most forbidding. It is the last month of winter's reign. City and country are full of tragedies of life succumbing to hunger and cold. It is a desperate month, but there are those who hesitate to choose between February's sullen savagery and the fierce March. February concludes the winter's tale with what it will. While spring is not yet a reality, there is a vague feeling in the air, an expectancy, a sense of transition. Soon we will note the advent of the robin, the harbinger of spring to be followed by foliage and flowers, bright skies, balmy air; the spring when love returns to earth; for is not spring the mating season for all life? And thus we pass again from the dreaded shadow to the blessed light. June will be with us soon and we can again make our home with, or at least, frequently visit our animal friends and good old mother Nature grown young again.

DYSCHENZIA

The filling of the rectum with fecal material constitutes one of the stimuli to defecation. Ordinarily the rectum is empty, and only when a bowel movement is about to take place does that portion of the intestine become distended with feces. In 60 per cent. of the cases of constipation, according to Gant, the rectum is full. Singer calls this condition *torpor recti* or *dyschezia*, and explains the condition as one of artificial inhibition of a normal act. Irregular habits, lack of knowledge concerning this importance of daily and regular bowel movements, false modesty are causes, usually begun in youth. The composition of the food plays an important rôle; meat leaves but little residue, while foods rich in cellulose give plentifully of waste. A too rapid or free absorption of water by the colon is said to be an important factor in diminishing the volume and increasing the consistency of the fecal mass.

Dyschezia is a condition wherein the rectum is not completely emptied at defecation. Two forms are described by Singer. Insufficient defecation and obstruction, or lack of perfect functioning

and mechanical or organic interference to a complete defecation.

Referring to treatment, he regards enemas as imperative, and advises water drinking, chamomile infusion, warm oil and liquid paraffin, morning and night.

The question of diet is all important.

Newburgh recommends for this condition the following diet:

Breakfast.—Fruit such as apples, grapes, or berries; cereal in considerable quantity; oatmeal, cracked wheat or corn meal mush (whole wheat coarsely ground and cooked as is oatmeal, Editor); eggs, cooked to taste; graham or whole wheat bread, toasted or plain; coffee or tea.

Luncheon.—Small quantity of fish or meat, with plenty of two or more of the following vegetables: spinach, cabbage, cauliflower, tomatoes, green peas or beans. Whole wheat, graham bread, or oatmeal crackers; dessert as desired.

Dinner.—Unstrained vegetable soup; small quantity of meat, fish or poultry; baked potato with jacket, and again a plentiful quantity of vegetables, peas, green beans, spinach and cauliflower, with a lettuce, celery or asparagus salad; bread same as at luncheon; dessert and coffee.

DRIED MILK

Of the numerous devices adopted by modern science to render the natural milk of animals, especially of the cow, free from objectionable qualities, none are so uniformly successful, perhaps, as that of drying. In the original Just-Hatmaker process for the manufacture of dried milk upon the large scale, the milk was allowed to fall upon revolving steel cylinders at a white heat, the resulting milk scales being reduced to powder by metal teeth. When this powder, which is light and flocculent, is mixed with water the original color and flavor of the milk is reproduced. As a matter of fact, the milk retains its natural antiscorbutic properties, so that infants fed on a good brand of dried milk do not develop any of the deficiency diseases. This point was brought out by Dr. A. E. Naish (*Medical Press*, September 24, 1913), Senior Assistant Physician to the Royal Hospital, Sheffield, in a paper read before the recent

Conference on Infant Mortality held at the Caxton Hall, who followed as many infants as possible up to the ages of three, four and five years. Regarded as a substitute for fresh cow's milk, dried milk answers remarkably well in infant's milk depots, where this commodity can be retailed in measured quantities with far less risk of contamination than there is with ordinary milk. From the point of view of storage and distribution, powdered milk possesses great advantages over the fluid product, since it can be sent by post packed in tins. Travelers upon the Continent find dried milk very useful for purposes of tea making, when they cannot get anything else. Moreover, the germ content of dried milk is exceedingly low, so that it deserves to occupy a high place in the treatment of infantile and other forms of epidemic enteritis prevalent in the warm season of the year.

PORCELAIN HOUSES

A home of porcelain, that can be erected with a screwdriver and wrench in a few hours, is the plan of W. Hales Turner, who calls himself "the pioneer of porcelain," and who has explained to a reporter some details of his project.

"In the construction of the porcelain house," he said, "there is a complete absence of all absorbent materials, such as bricks and mortar, plaster, whitewash, concrete, woodwork, and paper. The complete porcelain house is constructed as follows: Framework, preferably of light, rustproof metal. Into this framework are fitted the huge porcelain panels, half an inch thick, 6 feet long and 3 feet wide, weighing 5 pounds to the superficial foot, decorated and glazed on both sides to resist wind, storm and weather, with steam tight joints, made of copper coated asbestos tape.

"Porcelain is nonabsorbent, insect and germ proof, fireproof and washable, and it makes possible for all a perfectly hygienic home. As for warmth, an inch thick wall of pure porcelain glazed both sides is better able to keep out cold than an eighteen inch brick wall. With bricks and mortar it takes months to erect a house, of say, five rooms; a porcelain house of the same size can be put up in a few hours."

DIGEST OF CURRENT MEDICAL LITERATURE

The Effects of the Ductless Glands Upon Development.—"Despite the immense amount of work which is now being done upon the ductless glands," says Hastings Gilford, in the *Lancet* for September 6, 1913 (Abst. *N. Y. Medical Journal*, October 18, 1913), "we still have to go to clinical and pathological evidence as the basis of our knowledge." Two kinds of research pursued in the study of their functions—the experimental and the pathological—tend to run along lines which are either parallel or divergent, but which can seldom be brought to a focus at any point. He contends that there is a tendency for those who approach the problem from a laboratory side to become lost in the mazes of abstract science, while those who approach from the hospital side incline to come prematurely to conclusions which are unscientific. In order to be practical and to get at the truth, Gilford thinks that we must turn to pathology for most of our information. "The normal action of these glands is so delicate, so complex, and so abstruse that we can best judge of what happens in health by drawing inferences from that which takes place when their action is magnified or diminished by disease." Acting upon this basis, Gilford discusses the relation of these glands to development, remarking that the problem is that of studying the inhibition or the reinforcement of those bodily correlations which are carried on through the medium of chemical secretions or hormones. In the matter of development the initial correlations are possibly set going by the mechanical penetration of the spermatozoon into the ovum, and they probably continue for a considerable time, before the ductless glands are developed, without the influences of these glands, and it is highly probable that some faculty of adjustment and correlation persists throughout life which is quite apart from the action of the nervous system or the ductless glands. Thus it is hard to understand the adjustments which occur in achondroplasia, in rickets, and microcephaly unless we adopt some explanation which leaves out the ductless glands. Though the ductless glands are of great importance, we are led to suppose, therefore, that they are only a part of the machinery of adjustment.

Is Enlarged Prostate the Cause of Residual Urine?—A. G. Miller (*Practitioner*, November, 1913) says that from his experience he

would answer this question in the negative. He has met with cases in which there was residual urine without any perceptible enlargement of the prostate. He grants that the two conditions usually coexist in patients who present themselves for treatment, especially at hospitals, but thinks that this may be because both conditions are common in old men. He believes that residual urine is the result of not emptying the bladder properly, that this is the outcome of a habit too easily acquired by old men, and that in many cases, if taken early enough, the residual urine can be got rid of by training the bladder to empty itself thoroughly even when enlargement of the prostate is present, unless the bladder has become atonic, flaccid, or sacculated.

Property vs. Life.—To the legal mind, apparently, the rights of property have always seemed of more importance than human life. For hundreds of years it was possible for a man brutally to maltreat his child with less legal risk than if he had poached a hare. Gradually human life became more valuable; but even today it fails to receive the protection that is accorded to property. It is no uncommon thing to find reported in British newspapers cases in which a drunken navy has kicked and otherwise abused his wife, to receive no greater punishment at the hands of the law than a paltry fine; while the unhappy wight who, driven by hunger, steals a loaf, is sent to prison. Nor do we need to go oversea to find such instances of the worship of property. An excellent illustration of the workings of the legal mind in problems of this kind is to be found in a study of ten Notices of Judgment issued by the United States Department of Agriculture and giving in detail the account of ten violations of the Food and Drugs Act. These ten cases deal with charges brought against a firm who are in the candy business, who sell what is known as "penny goods," that is, the kind of candy purchased by the little tot who has been given a penny to spend. Ten different specimens of these penny goods were seized by the officials of the Bureau of Chemistry and analyzed. All of them were found to be adulterated with arsenic and most of them contained shellac. All of them were being sold as chocolate candies, yet the officers reported that some did not even have the predominating flavor of chocolate. In every case the firm pleaded guilty. In nine out of ten cases no penalty was imposed, the court suspending judgment. In the tenth case a fine of fifty dollars was imposed. The case in which a fine was imposed was the one, and the only one, in which the company had not merely sold a poisonous product to little

children, but had misstated the net weight of the package in which the arsenic containing candies came! Selling to little children as chocolate candies a mixture containing arsenic and shellac but not containing the predominating flavor of chocolate is, apparently, in the eyes of the law, a trivial offense. But selling to a dealer a package marked five pounds that really contained only four pounds fourteen and five eighths ounces, that is a crime!—*J. A. M. A.*

Rectal Alimentation.—Harry W. Goodall in *Boston Medical and Surgical Journal*, January 8, 1914, declares that in the normal physiological functions of the large intestine as an excretory organ, the work performed by the large intestine is chiefly excretory. For besides the fact that the digestive residue remains in this part of the alimentary tract for twenty two hours and is then excreted, the walls of the large intestine play an important part in the excretion of lime, magnesium, iron and phosphates. Furthermore, it is the main channel of excretion for certain substances which are not normal food constituents, such as bismuth and mercury, and it is probable that ulcerations in the large intestine may be due to this excretory function. This is certainly so in the case of mercury.

As a Digestive Organ. Normally the large intestine plays a very minor part in digestion. Solitary glands and follicles of Lieberkuhn have been demonstrated, but for the most part the mucous membrane shows the typical goblet cells which secrete mucus. The presence of any digestive ferments is very doubtful and would be unnecessary, since absorption is very complete in the small intestine. Digestion may, however, occur in this region provided digestion is not complete in the small intestine as some of the enzymes secreted in the small intestine may pass along with the bowl content. Furthermore, carbohydrates and proteins, if present, are attacked and disintegrated by the bacteria normally present in the large gut.

As an Absorbing Organ. As an absorbing organ it is of little importance, as might be expected in the absence of villi and valvulae conniventes. Normally no absorption of food material worth mentioning takes place. It has been estimated that about 500 c.c. of water pass the ileocecal valve in twenty four hours, and of this about 400 c.c. are absorbed.

In considering the result of animal experimentation it must be borne in mind that with dogs and some other animals absorption is never completed in the small intestine, but continues in the large intestine, carbohydrates and fats being absorbed more rapidly than protein.

Magnesium Sulphate in Spasmophilia.—Berend (*Monatsschrift für Kinderheilkunde*, XII, No. 6, pp. 269-346) used magnesium sulphate subcutaneously in treatment in forty cases, twenty-seven of spasmophilia and fifteen of eclamptic children without spasmophilia. Detailed case histories and clinical charts are given. His initial dose was 0.2 gm. in the form of 15 to 20 c.c. of an 8 per cent. solution. He tried using 15 and 25 per cent. solutions, but with no better effect. Twice this dose could be given daily to infants without any toxic effects. The quickest and most intense effect was on the electric excitability of the muscles and the spasms of the hands and feet. It acts somewhat more slowly on the general spasms and Trousseau's sign, and least of all on spasm of the glottis. Results were generally obtained in twenty four hours, and it was seldom necessary to continue the treatment longer than four or six days. Phosphorus and cod liver oil were given in conjunction with it after the second day. The two treatments supplement each other. There are two marked advantages with this over other forms of treatment: recurrence seems to be much rarer and the course of the spasmophilia is decidedly shortened. Moreover, with this treatment mother's milk is less of an essential. There is no danger of inanition because food does not need to be withdrawn as in other forms of treatment. The only point to be insisted on in diet is that it must be poor in salts. The treatment is also of value in convulsions not due to spasmophilia if there is no cerebral irritation or disturbance of kidney function.

The Treatment of Pneumonia.—In discussing a paper upon the above subject by Robert N. Willson, read before the Philadelphia County Medical Society, November 12, 1913, Dr. S. Solis Cohen declared that Dr. Willson's division of the pneumonias into acute, lobar, croupous, catarrhal or inflammatory catarrhal is not quite complete, because the broncho- or catarrhal pneumonia must be subdivided according to the causative organisms. The treatment that would be suitable to a case of tuberculous bronchopneumonia would be unsuitable to a case of influenza bronchopneumonia. From a study of the statistics it is found that the average mortality of pneumonia in the last thirty years is in the neighborhood of 33%. Previous to the last thirty years it was about 25%. The measures used by our fathers were rather vigorous,—venesection and heavy doses of various drugs. The expectant treatment has not been as successful as even the misguided treatment of an earlier period. The one greatest advance of modern treatment is the exposure of

the patient to fresh cold air. Excluding the sort of cases that come to the Philadelphia Hospital, having been exposed to all sorts of weather and with pathological conditions in the various organs, the mortality should be reduced to 20%. He believes we can do still better by the proper administration of quinine and other indicated measures.

Bronchial Spirochetosis.—A. J. Chalmers and W. R. O'Farrell (*Journal of Tropical Medicine and Hygiene*, November 1, 1913) believe that bronchial inflammation associated with the presence of spirochetes will be found very common in the Anglo-Egyptian Sudan. In the ten cases they have seen large numbers of *Spiroschaudinnia bronchialis* were found in the sputum, but relatively few bacteria, and no other organisms, such as fungi. The spirochetes are always present in abundance during an attack, diminish during convalescence, and are subsequently either absent or found with difficulty. Intratracheal inoculation of a healthy monkey with sputum from a case gave positive results. Tubercle bacilli were never found in the cases under observation, and the authors are convinced that the spirochete referred to is the cause of the affection. Chilling, however, may act as a secondary cause. The symptomatology is that of mild attacks of acute bronchitis, separated by intervals of good health or of a more chronic illness closely resembling the early stages of phthisis, and sometimes associated with slight hemoptysis. Complication with the pneumococcus was met with in one case. The diagnosis can be made only by examination of fresh sputum, preferably with dark ground illumination. The organisms, though numerous, tend to collect in special areas of the film, and may therefore require a little search. The disease seems readily amenable to treatment in its acute phases. Rest in bed, good food and ventilation, and arsenic in some form, preferably with glycerophosphates, are indicated. The drugs may be given by mouth, or intramuscularly as an injection: Sodium cinnamate, 0.05 gm.; sodium cacodylate and sodium glycerophosphate, of each 0.1 gm. The disease is probably transmitted by human carriers. The history of a similar attack should lead to an examination of the sputum, and if this prove positive, arsenic should be given for prophylactic purposes.

Effect of Digitalis on Blood Pressure and Pulse Pressure.—C. H. Lawrence (*Boston Medical and Surgical Journal*, January 5, 1914) points out that in the majority of writings upon digitalis, it is stated

that one effect of the drug is to raise the systemic blood pressure, and that for this reason its use is contraindicated in those conditions in which an increase of circulatory tension might give rise to unfortunate results. On the basis of work already done on animals and normal individuals the conclusion has been reached that digitalis causes a rise in blood pressure when administered to individuals suffering from cardiac decompensation. As the result of observations reported on twenty five cases taken at random from the records of the Massachusetts General Hospital the following conclusions were come to: (1) The effects of various drugs on the blood pressure as determined by experiments on animals do not furnish reliable criteria for the administration of such drugs to man since the effect may be quite different in the latter. (2) The pressure raising effect of digitalis noted in animals and in healthy individuals does not occur, as a rule, when the drug is administered to individuals suffering from cardiac decompensation. (3) The cause of the cardiac decompensation does not appear to affect the action of the drug. (4) Digitalis preparations may be safely administered to patients suffering from arteriosclerosis, angina pectoris, or nephritic hyperdistension, if cardiac decompensation is present; under such conditions it rarely causes a rise in blood pressure.

Influence of Strychnine, Caffeine, Chloral, Antipyrin, Cholesterol, and Lactic Acid on Phagocytosis.—Arkin (*Journal of Infectious Diseases*, November, 1913) states that there are three essential factors concerned in bacterial phagocytosis on which chemical substances may act so as to increase or depress phagocytic activity, namely, 1, the leucocytes; 2, the opsonins; and 3, the bacteria. The effects of a variety of substances on phagocytosis have been studied by him and a brief statement of results is made. From his own and other experiments he concludes that alcohol, chloroform, ether, chloral, morphine and potassium cyanide depress phagocytosis in vitro. These substances all have an inhibitory effect on oxidation, to which their action on phagocytosis is in all probability due. Strychnine has a marked stimulating action on the phagocytosis of streptococci by human leucocytes in the presence of human serum. This action offers an explanation of the value of this drug in infections, and suggests a more extended use of it. Caffeine, in weak solutions, one tenth per cent., has practically no effect, but stronger solutions inhibit phagocytosis. Antipyrine has no effect, cholesterol has little effect, while lactic acid suspends hemolysis and phagocytosis by acting on the complement and the opsonin.

Need of Care in Handling Mesothorium.—Allmann (*Deutsche Medizin Wochenschrift*, December 18, 1913) records the following case: in a laparotomy for ovarian cancer, 160 mg. mesothorium were inserted intratumorally, an ordinary hole having been bored for its reception. The remedy was first enclosed in glass tubes, these in turn within silver tubes. These tubes are normally covered with a protective or nicked brass, but to secure the stronger action, the author stripped this off and substituted gauze, thin rubber, and again gauze, making a triple covering. After renewing the external gauze, the filter was placed in a recurrent nodule in the vagina which was then bleeding. As the silver coated tubes were being inserted one tubule of mesothorium was melted, but in the middle of the tube, the glass remaining intact. This tube was in use for four months, the probability being that the rays had attacked the silver and denatured it. However, the tube did not break when placed within an orifice, which showed that the glass and silver remained intact. While nothing detrimental occurred in this case a friable silver tube in breaking suddenly might fill the space with broken glass.

Malapplication of Albumin Water as a Nursling Food.—Lust (*Münchener Medizin, Wochenschrift*, December 9, 1913, concludes an article on this subject, in which he claims that when the digestive tract of the healthy baby is irritated by the exhibition of egg albumin in water, how much more marked must this be when the nursling stomach is already acutely disordered. It is not, however, the direct effect of the albumin which is to be feared; it is the remote effect in causing vasomotor disturbance. Causes have been seen in which egg albumin merely left on the baby's lips has caused both local and general symptoms severe in character.

Subcutaneous and Intramuscular Melubrin Therapy.—K. Riedel (*Münchener Medizinische Wochenschrift*, November 4, 1913) avers that melubrin solutions are fitted for subcutaneous or intramuscular use because they do not irritate the tissues and are absorbed in a short time. On account of the ease of application these injections are preferable to intravenous injections. In cases of acute articular rheumatism the injection of a few grams daily may be made two or three times a day without the use of the stomach.

Importance of Lime Salts for the Therapy of Internal Affections.—Kayser (*Berliner Klinische Wochenschrift*, December 1, 1913)

sums up his general review of this subject as follows: Calcium salts act upon the blood and blood vessels by tightening the unduly permeable vascular wall, thus promoting coagulation and stripping exudation. They influence the excitability of the nervous system by depressing the latter, especially the vegetative and autonomous, and are therefore indicated in internal medicine especially tetany, epilepsy, hay fever, and asthma bronchiolae, in all of which they are used with success. In disturbances of the calcium metabolism, as in rachitis, osteomalacia and Graves's disease, lime salts are also of use. Through the ability of increasing the phagocytotic power of the blood, lime salts appear to come into question for the therapy of infectious diseases like pneumonia and tuberculosis. Lime also cures oxalic acid poisoning. The salts may be given per os, subcutaneously, by the rectum, and intravenously. Hence it is essential to exhibit the remedy in large doses, and for a period of one or two weeks.

Hot Air in Treatment of Suppurating Wounds.—Roziès (*Presse Medicale*, November, 1913) expatiates on the bactericidal action of hot air and its desiccating influence, aiding in cicatrization. He states that he has been much impressed with its efficacy in the fourteen cases of open sores in which he has applied the method. He uses a small portable air pump turned by a hand crank or a pump worked by a pedal, the air heated by an alcohol lamp. The sore heals over more rapidly and certainly than under other measures, and the scar seems to be less disfiguring, smoother and more flexible. The effect was particularly noticeable in suppurating wounds that had failed to heal under other measures, especially torpid leg ulcers and traumatic or operative superficial lesions. Of course, deep bone processes are not influenced to such an extent.

Action of Digitalis on Pulsus Alternans.—Danielopolu (*Archives des Maladies du Coeur*, etc., Paris) concludes from his study of four cases that digitalis has both a retarding action on the myocardium and a retarding action on the length of the refractory period. According as one or the other of these elements predominates, the effect on the pulsus alternans is quite the reverse of that with the other. The retarding action seems to predominate generally, and consequently digitalis should at least be given a trial in these cases. The alternating rhythm and the phenomena indicating asystole disappeared in his four cases while the heart was under the influence of the drug, but then returned in all but one case, in which the benefit was permanent.

Theobromin Sodium Salicylate.—The object of Neuhof's (*New York Medical Journal*, October 25, 1913) communication is to show the practicability of intravenous theobromin sodium salicylate injections. The solution is readily prepared and sterilized, and when properly given produces no reaction. While 20 c.c. of a 5 per cent. solution have been found a convenient standard, it may be modified to suit individual requirements. It seems particularly indicated in uremia, in the anuria of cardiovascular renal diseases, and in some types of primary renal disease when internal administration is impracticable or impossible and quick diuretic action is necessary. It is further suggested that these injections may be of benefit in some types of uremia accompanying eclampsia; in conjunction with other forms of treatment, it may help in starting diuresis.

Albumin in the Sputum.—M. L. Holen and L. R. Hummelberger, in the *Journal American Medical Association*, January 3, 1914, conclude that:

1. The presence of albumin in sputum indicates that it is not a superficial secretion but usually comes from some deep seated inflammatory process.

2. Albumin is present in practically all sputa of tuberculous origin and that the amount bears some relation to the activity of the disease.

3. Persistent absence of albumin or its presence only in traces excludes tuberculosis as the source of that sputum. In our experience with the method described this is true in a large percentage of the cases examined.

4. The determination of albumin in sputum is one of the most important aids to the diagnosis and prognosis of tuberculosis that has been introduced in recent years. The simplicity of the method commends itself to the general practitioner as a routine office procedure. It is as easily carried out as is the determination of albumin in urine and is of greater importance.

Advantages of Ichthyol for Rinsing Out the Stomach.—Conti (*Archiv für Verdauungs-Krankheiten*, October, 1913) has been using for ten years a 10 per thousand solution of ichthyol for rinsing out the stomach in case of gastritis or malignant disease, and has found the results very satisfactory. He poured the fluid into the stomach and left it there for fifteen to twenty five or thirty minutes, leaving the stomach tube in place in the meanwhile. The patients

displayed a surprising tolerance for it, and the toxic coefficient of the stomach content was materially modified by the ichthyol, as he explains in detail.

Nasal Catarrh.—The treatment Wilson (*Practitioner*, October, 1913) has found most useful in cutting short an attack of acute coryza is the following: 1. A single pill of morphin gr. 1/6 made up with a little capsicum and ol. menth. pip. A small dose of nitroglycerin also is advantageous. 2. In two hours 10 grains of aspirin. 3. A hot bath. The following morning, a purgative dose of magnesium sulphate is given to clear away the intestinal contents held back by the morphin. Neither a nasal douche nor a spray should be employed, but an irritant antiseptic ointment containing menthol and salicylic acid will best fulfil the purpose. A small portion of such an ointment is inserted well up into each nostril, where, if sniffed back, it gives rise to considerable smarting and secretion; it should be applied frequently despite the pain. It will be succeeded by a period of relief, and then the nose can be sprayed repeatedly with a sedative preparation. Despite the pain caused by the menthol salicylic preparation, no cocain should be employed at all, as it paralyzes the ciliated epithelium and opens the way for fresh infection.

Phosphorus and Codliver Oil in Rickets.—Max Kassowitz (*Deutsche Medizinische Wochenschrift*, September 4, 1913) states that the calcium balance experiments cannot clear up the processes taking place in the bony skeleton, since even in the healthy child the calcium varies greatly, due in all probability to changes in the intestinal tract. For therapeutic purposes in rickets phosphorus is the ideal remedy, and it is immaterial in what form it is administered. Codliver oil, from a practical standpoint, is beneficial.

Noviform.—O. Fresse (*Deutsche Medizinische Wochenschrift*, September 4, 1913, finds that in rhinology and laryngology noviform in powder or on gauze is used with satisfaction for postoperative treatment or for inflammatory or ulcerative processes. Its action is antiseptic and astringent; its deodorizing property is not sufficiently strong to overcome the fetor in pronounced ozena.

THERAPEUTIC PROGRESS

Isotonic Solutions in the Local Treatment of Gonorrhea.—Uteau and Saint-Martin, in *Presse médicale* for August 23, 1913 (*New York Medical Journal*, February 14, 1914), are credited with the statement that intraurethral injection of isotonic medicinal fluids, that is, fluids prepared by dissolving the antiseptic or other agent to be used in 0.75 per cent. saline solution, is better borne and generally occasions much less pain than where pure water alone is employed. Potassium permanganate, mercury oxycyanide, and the organic and colloidal silver preparations should all preferably be used in isotonic solution. No chemical change results from their dissolution with the sodium chloride, except in the case of the mercury salt, which, especially when the mixed solution is boiled, may set free minute amounts of mercury oxychloride, mercury bichloride, and sodium cyanide. In a large number of urethral and vesical irrigations or instillations made with isotonic solutions by the authors, better therapeutic results seemingly were obtained than with the ordinary procedure. Especially in early acute urethritis there was a marked difference, large irrigations with permanganate and colloidal silver causing no discomfort and proving more promptly curative. Instillations of silver albuminate, even one in forty strength, were found quite painless when normal saline solution was used as solvent.

Yatren in Diphtheria.—F. S. Freund, *Deutsche Medizinische Wochenschrift*, November 27, 1913, states that yatren possesses strong bactericidal action, is almost wholly nonpoisonous, does not affect healthy tissue, is absorbed evenly from the mucous membrane, and excreted by the kidneys undecomposed, without harming them; on account of its sweet taste it is well liked by children and has a slight laxative effect, for which reason the doses at times must be cut down. In eighty cases of diphtheria it was given alone or in conjunction with the serum; locally but mostly internally (0.2 to 0.4 gm. two to three times daily) with very good results, notwithstanding the fact that its administration did not always prevent a fatal issue. It is recommended as a prophylactic and in the treatment of bacilli carriers.

Treatment of Diphtheria with Intravenous Serum Injections and Yatren.—W. Kausch, *Deutsche Medizinische Wochenschrift*, November 27, 1913, contrasted injections with noninjections in treating cases of diphtheria during an epidemic. The noninjected cases had without exception a much more severe course, thus proving that to the diphtheritic serum must be ascribed decided favorable action. This was plainly demonstrable when the serum was given intravenously (500 to 1,500 u.), and in some instances intramuscularly (1,500 u.). It seems that the author does not make subcutaneous injections. The yatren, given locally and internally, is considered to be a valuable adjunct to other antidiphtheritic remedies; it causes a rapid dissolution of the exudates, disappearances of the fetor, healing of the bacilli carrier, and can be substituted for the prophylactic injection of serum.

Calcium and Magnesium in Therapy on the Basis of Experimental Results.—M. Kochmann, *Deutsche Medizinische Wochenschrift*, November 6, 1913, says that the calcium in the animal organism not only serves the purpose of building up the skeleton, but also makes harmless the poisons of normal and pathological metabolism (diabetes, oxalic acid poisoning). Further, it is the catalyzer in ferment action (clotting of blood) and instigator of phagocytosis. Accordingly, the therapeutic results with calcium will serve to balance up a negative calcium deficiency, to effect the neutralization of certain poisons, the promotion of blood clotting, and the preventing of thickening of the walls of the blood vessels. The rôle of magnesium in the body is less clear. The experiments of Metzger and Auer showed a paralyzing action of subcutaneous or intravenous magnesium sulphate on certain portions of the nervous system. On the clotting of blood is based the treatment of tetanus with subcutaneous injections of a twenty-five per cent. solution of magnesium sulphate solution. Certain toxic effects of magnesia can be immediately counteracted by intravenous calcium injections. The use of the magnesium preparations for catharsis is well known.

Valamin, New Hypnotic and Soporific.—Bräutigam, *Deutsche Medizinische Wochenschrift*, November 20, 1913, says valamin is a valeric acid amylen hydrate and a good sedative (two to three pearls) and hypnotic (three to four pearls). The remedy can be taken only after meals.

Digipan.—K. Weiss says digipan contains digitoxin and digitalin in about the same proportions as the plant itself, while the irritating and hemolytic (even in one to 80,000 dilution) digitonin is practically wholly removed in the manufacture. The preparation has proved a good digitalis remedy clinically. With relatively small doses and in a short time there was rise in blood pressure, diminution in the frequency of the pulse, and increased diuresis. The preparation is administered by mouth by drops or in tablet form; also intravenously and intramuscularly. Unpleasant side action or cumulative action has not been observed.

Abderhalden's Dialysis Procedure in Scarlet Fever.—W. Schultz and L. R. Grote demonstrated by means of Abderhalden's technic the presence of protecting ferments against lymph glands in the fifth and thirty-second day of disease in scarlet fever. These ferments are, as such, specific for lymph glands and not only for those changed by the scarlet fever virus.

Diogenal.—R. Heinz asserts that diogenal, derived from veronal, dibrompropyldiethylbarbituric acid, proved on animals to be much less toxic than veronal and correspondingly much less effective. The action on the whole is milder; it is therefore possible to use diogenal not only as a soporific, but also as a general sedative.

Amebic Dysentery.—Whitmore declares that amebic dysentery may occur in persons who have never been to tropical or semitropical countries; and the amebæ found in these cases are identical with the amebæ found in cases of amebic dysentery in the tropics.

MISCELLANY

PANAMA PACIFIC INTERNATIONAL EXPOSITION WILL DISPLAY ACHIEVEMENTS OF EUGENIC SOCIETIES

Among the features that will make the Panama-Pacific International Exposition unusual in the history of such world events, that which will render it absolutely unique will be the exhibits in Eugenics and in Sex and Mental Hygiene. The Exposition will be larger, grander and more inclusive than any that have gone before, but in the exhibits named it will be the pioneer and actually the first to present to the world the epochal achievements in a line of endeavor that but a few years ago was looked upon as Utopian or the chimera of over imaginative brains.

"In a very important sense," says Mr. Alvin E. Pope, Chief of the Exposition's department of Social Economy, under which the exhibits in Eugenics, and Mental and Sex Hygiene will be displayed, "this department of activity is of the greatest importance to humanity, of all the subjects, or products which the Exposition will discover to the world when the completion of the Panama Canal is celebrated in 1915."

Mr. Pope is authority for the statement that money will not be spared in making the exhibits as complete as possible, for they have been undertaken by four great forces backed by unlimited funds.

The results to date of the Carnegie investigation in the laws of heredity will be shown.

The National Sex Hygiene Association will be represented at the Exposition in an exhaustive exhibit.

The National Committee for Mental Hygiene will present a full display of the results of its work.

The Government's operations in the same field of endeavor will be seen as developed under the Bureaus of Plant and Animal Industries, in the first of which the laws of heredity are studied and in the second, Eugenics.

At Cole Springs, New York, under the patronage of Andrew Carnegie, research concerning the laws of heredity have been carried on scientifically and successfully for some time. The index to heredity's manifestations they say, is found in the eye. Eye colors, as transmitted from generation to generation, have been studied in the hope that general laws, applicable to mental as well as spiritual inheritance, may be deduced when the secret of the color of the eye yields to scientific classification.

The National Sex Hygiene Association will exhibit its statistics, data and physical illustration pertaining to the social evil and to the foul train of disease that follows. It will tear the veil that false modesty's timorous fingers have drawn before truths that should not be hidden. It will disclose as its object in the exhibit, the cause and

the prevention of the evil that has persisted in the human family through vice and ignorance.

And this object will be conserved also in the exhibit planned and well under way by the National Committee for Mental Hygiene. In this department will be shown how the penitentiaries of the country are peopled by the offspring of epileptics, the feeble minded, the degenerate and the defective. To avoid the birth of such by preventing the marriage of their probable progenitors, is the object of this committee's work in the world.

Singularly enough the study of Man, recommended by Pope as the proper study of mankind, is governmentally prosecuted under the auspices of the Federal Department of Agriculture. From the contemplation of plants, biologists pass naturally to the study of man, and the activity of the Government in the conservation of the animal industry of the country leads naturally to the study of man as well. Hence Man is embraced in Governmental concern as exhibited in its Bureau of Plant Industries, and its Bureau of Animal Industries, both of which will be adequately represented at the Exposition which is to celebrate the completion of the Panama Canal.

"Thus far," says Mr. Pope, chief of the department of Social Economy, for the Exposition, "most all of the work done by any of the four forces engaged in the betterment of humanity, has been of a negative quality. I mean that what has been accomplished is directed to the prevention of the persistence in the race of defectives, the feeble minded and criminals. To clear the race by eliminating its diseased and decayed elements is the first great step to be taken. Later will come effort at improvement. To prevent the birth of incompetents will rid the world of such in a single generation. To improve the race by the proper instead of the promiscuous marriage of physically and mentally uncongenial pairs will be a step for the future to negotiate. However, it is proposed that the exhibits in the department of Social Economy will reveal the negative, or preventive, work that has been accomplished and also the positive achievements in behalf of that chief object of mankind's interest and concern—Man."

SUMMARY OF REPORT OF THE CENTRAL COUNCIL OF NEW YORK PUBLIC HEALTH ON THE TYPHOID EPIDEMIC OF 1913

1. Typhoid fever is acquired by drinking and eating food contaminated by the excreta of typhoid patients. Water, milk, vegetables, oysters and shell fish, are the chief articles of food by means of which typhoid fever germs are carried into the stomach.

2. The comparison of the typhoid death rates of 2.5 per 100,000 population in Hamburg, 3.6 in Berlin, 4.0 in London, 4.1 in Vienna, and 6.7 in Paris with typhoid death rates of 11.6 in New York, 11.6 in Boston, 13.7 in Chicago, 17.4 in Philadelphia, and 23.2 in Washington, D. C., strikingly indicates how much more there remains to be done along the lines of prevention of this disease in this country.

3. A large percentage of typhoid outbreaks is milkborne and

preventable. The recent serious outbreak in Manhattan (autumn, 1913) had its origin in contaminated milk. This fact again emphasizes the need for efficient pasteurization of all raw and certified milk.

4. The department of health of the City of New York is not equipped financially to control efficiently the production and distribution of the milk sold in this city.

5. The department of health has used its present small force of typhoid inspectors to good advantage.

6. A large proportion of cases of typhoid in this city seems to have originated through careless contact with typhoid patients. This is probably the result of:

A. The incomplete reporting of typhoid cases by physicians and hospitals and the consequent insufficient exercise of control by the department of health.

B. The apparent lack of appreciation on the part of physicians and the public of the contagiousness of the diseases; and

C. The inadequacy of the educational methods of the department of health concerning sanitary precautions, food preparation and disposal of excreta, and the lack of follow up visits by health department inspectors to ascertain whether instructions given have been carried out.

DOGMATISM

Dogmatism is not confined to the churches. When a scientist really sets about it, he can be more dogmatic than any theologian. Our readers have heard of the so-called "Learned Horses of Elberfeld," and the interest they have for students of animal psychology. They have frequently been visited by investigators, and some of their recently reported attainments are such as to excite astonishment. But at the Zoological Congress at Monaco, a protest was presented by more than a score of zoologists against any discussion of the Elberfeld horses. The curious thing is the ground alleged which is that "the doctrines contradict the concept of evolution, and that they are irreconcilable with the results of the scientific physiology of the senses, and of the psychology of animals; to allow this movement to spread unopposed would involve the new, and still ill developed, discipline of animal psychology in prolonged discredit." This is enough to make an Elberfeld horse laugh.

ANESTHESIA

Sir Lauder Brunton says that the oldest writer on pharmacology was Solomon, who, more than 2000 years ago, recommended as an anesthetic for both physical and mental pain the use of alcohol. The sentence Solomon wrote was: "The drunkard says, 'They have beaten me and I feel it not. I will seek it yet again.'" That was physical pain; the man did not feel the beating. For mental anesthesia Solomon's direction was: "Give wine to him that is of a heavy heart, and strong drink to him that is ready to perish that he

may drink and forget his misery." That was mental anesthesia. So they might say that Solomon long ago was working very much on the lines of modern pharmacology.

IN HOW FAR HAS THE DOCTRINE OF CLEANLINESS AND PUBLIC HEALTH PERMEATED THE MEDICAL PROFESSION?

C. W. Stiles (*Southern Medical Journal*, December, 1913) states that this question is asked in good faith. Cleanliness, he says, is at the very root of public health conditions. American medical societies have of late years been passing numerous resolutions endorsing health legislation, and it may therefore be assumed that they are prepared to set to the laity a proper example in cleanliness. He then cites a number of instances, recently observed, which go to show that the rank and file of the profession is not setting a proper example, and from these is forced to conclude that there are in practice a not inconsiderable number of physicians who have exceedingly elementary ideas on the subject of cleanliness.

The New York Edison Company, feeling that some good might be done if there were a central bureau where developments in apparatus pertaining to electro-therapy might be studied, established a Bureau of Electro-Therapeutics in 1912. Here are displayed the various types of apparatus that are from time to time produced by different manufacturers. The apparatus shown is at the disposal of members of the medical and its allied professions for inspection and test.

Some idea of the size of the bureau and the nature of its exhibits may be had from the enclosed copy of its catalogue.

The INDEX OFFICE which has recently been established in Chicago intends to make a specialty of serving the medical profession by undertaking to supply exhaustive or selected bibliographies of medical subjects; translations or abstracts of articles or monographs; copies, photographic or otherwise, of manuscript, printed or illustrative material.

Special attention will be paid to discretionary research and investigations in the libraries of Chicago and other cities.

The office also intends to bring investigators in touch with the work of others in the same line of research.

Located in the city of great libraries, the office will be in position to undertake quite extensive investigations without going outside the locality of its headquarters. It is the intention of the Board of Trustees, however, to establish connections in the other great library centers of the world.

Dr. Bayard Holmes, surgeon and medical writer, is President of the office; Aksel G. S. Josephson, Cataloguer of the John Crerar Library, is Secretary and directing officer. The office is located at 31 West Lake Street, Chicago.

BOOK REVIEWS

Geriatrics, The Diseases of Old Age and Their Treatment, Including Physiological Old Age, Home and Institutional Care, and Medico-Legal Relations. By I. L. NASCHER, M.D., New York, with an Introduction by A. JACOBI, M.D., with 50 plates, Containing 81 Illustrations. P. Blakiston's Son & Co., Philadelphia, 1914. Price \$5.00 net.

According to the author, this is the first distinctive American work upon diseases of the aged to be published. In presenting the work to the medical profession, Dr. Nascher hopes to arouse an interest in geriatrics and to stimulate research into the causes of senescence and the pathology of senile diseases. This interest will most surely develop in the minds of all physicians who read or study this work, for it opens up new thought and will arouse an interest.

The author has arranged his subject in parts or sections rather than in chapters, grouping the conditions under Physiological Old Age, Pathological Old Age, the later including Primary Senile Diseases, Secondary Senile Diseases, Modified Diseases of Old Age, Preferential Diseases of Old Age, Diseases Uninfluenced by Age, etc. There are also extended references to Home Care for the Aged, Institutional Care of the Aged, Medico-Legal Relations, Marriage, Sexual Perversions and Malingerers.

We find under childhood and Old Age a wealth of detail contrasting the conditions, the reading of which will prove most interesting and news to most of us. Here Dr. Nascher has planted the cornerstone of his work upon which what follows is but the superstructure and adornments. This is followed by a word picture of the senile state. A most pathetic picture, but exceptional, we think—the hope may be father to the thought—in others than the poor and neglected and those in homes for the aged. It cannot be general that: "While the dependence of the child arouses sympathy, in the aged the repugnance aroused by the disagreeable facial aspect and the idea of economic worthlessness destroys the sympathy we bestow upon the child and instills a spirit of irritability, if not positive enmity against the helplessness of the aged."

We come next to Causes of Ageing, and herein we have our most serious lesson, which to learn will entail careful reading, but once learned will equip us for what follows. It would be impossible for us to do justice to this work of over 500 pages in a review; we can but touch upon the salient points. But what a wonderful story is here unfolded, what a call to the sincere, humane worker in medicine; what an incentive to help.

We commend this work to all earnest men. It is beautifully illustrated, well printed and bound. It should be read by every medical man, not alone for the story told, but for the need which every one has for the helpful text.

The Early Diagnosis of Tubercle. By CLIVE RIVIERE, M.D., F.R.C.P., Physician to Out-patients, City of London Hospital for Diseases of the Chest, Victoria Park, E.; Physician East London Hospital for Children, Shadwell, E. Henry Frowde and Hodder & Stoughton, London, Oxford University Press, American Branch, 35 West 32d Street, New York, 1914. Price \$2.00.

Any work that will bring to the physician perfected and accepted diagnostic technic, physical and bacteriological, which will really insure determining phthisis in its early stages when there is promise of cure, will be sure of a welcome. This work of some 250 pages deals with diagnosis alone, but we believe exhausts the subject. In our reading we find the descriptions brief but succinct, terse but illuminating, and it is just this that will most commend the book to the busy general practitioner. We find clinical diagnosis including, of course, physical signs: Percussion, palpa-

tion, auscultation. The author truthfully states that a diagnosis of phthisis can rarely be made without percussion; that it offers positive information much sooner than auscultation. That in palpation the investigation is best performed by a combination of touch and vision. There is nothing new in this last statement, but too much stress cannot be laid upon the proper and skilled methods of observing physical signs. That percussion and auscultation are the alpha and omega of physical diagnosis in detecting pulmonary tuberculosis is strongly asserted.

We have Special Diagnostic Tests, including Röntgen Rays, Tuberculin, Temperature, Autoinoculation, etc.

Part Second deals with diagnostic methods as applied to children, etc. We commend this work to the general practitioner of medicine.

Radium Therapeutics. By N. S. FINZI, M.B. (Lond.), M.R.C.S., L.R.C.P., L.S.A., Chief Asst. in X-Ray Department, St. Bartholomew's Hospital. Henry Frowde and Hodder & Stoughton, London. Oxford University Press, 35 West 32d Street, New York, 1913. Price \$2.00.

A most timely treatise on the action and use of radium and its rays, for in the present limited state of our knowledge of the therapeutics of this agent we are in need of authoritative facts in order to distinguish between exorbitant claims and definitely proven facts. Much, too much, has been told of what could be done with radium, men prominent in the profession have rushed into print in the newspapers, popular magazines, as well as medical literature, with statements of miraculous cures of cancer.

Here we have the authoritative statement that little is known of the effect of radium on the majority of deeply seated benign growths, but in malignant growths, while it is true that only a small proportion of these patients recover, and a still smaller proportion remain well after treatment with radium, there is no hope of cure by any other method of treatment, except X-rays, and that these are not so successful as radium. This is a conservative declaration which is to be commended. The author advises treatment of malignant growths with radium, but states its limitations.

Practical Sanitation: A Handbook for Health Officers and Practitioners of Medicine. By FLETCHER GARDNER, M.D., and JAMES PERSONS SIMONDS, B.A., M.D. Illustrated. C. V. Mosby Company, St. Louis, 1914. Price \$4.00.

Heretofore we have had to depend on brief treatises on various phases of sanitation. Here we have all phases of sanitation under one cover. It is a subject of large dimensions and exacting demands, and as such should receive scientific treatment. We believe that this work covers the field and that it is to be accepted as authoritative. It includes epidemiology, general sanitation and laboratory methods; it is copiously illustrated and should be widely read.

The Anatomist's Notebook: A Guide to the Dissection of the Human Body. By A. MELVILLE PATERSON, M.D. (Edin.), F.R.C.S. (Eng.), Professor of Anatomy University of London, etc. Henry Frowde and Hodder & Stoughton, London. Oxford University Press, 35 West 32d Street, New York, 1914. Price \$2.00.

This work is offered as a guide to help the student in the study of practical anatomy, especially in the dissecting room. It is interleaved for notes, well illustrated and is withal a most useful volume.

Diagnostic Methods: A Guide for History Taking, Making of Routine Physical Examinations and the usual Laboratory Tasks Necessary for Students in Clinical Pathology, Hospital Internes and Practising Physicians. By HERBERT THOMAS BROOKS, A.B., M.D., Professor of Pathology, University of Tennessee, College of Medicine, Memphis,

Tenn. Second Edition, Revised and Rewritten. C. V. Mosby Company, St. Louis, 1914. Price \$1.00.

This small work is intended to give information in laboratory tests for medical students, hospital internes and physicians and as such will be found helpful.

Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1913. Government Printing Office, Washington, 1914.

This is a very interesting book giving in brief a history of the work done by the Public Health Service for the year 1913, which it would be impossible to review in detail here.

The Yale University Press has now in active preparation "The Fundamental Basis of Nutrition," by Graham Lusk. In this concise and readable manual Dr. Lusk discusses the historical study of nutrition and modern investigations in that field. He includes very important statistics showing how men in different occupations should be variously nourished and how the maximum number of proteins may be obtained at a minimum cost. The whole presents the principles of nutrition which our generation has done so much to discover and in a form to benefit the layman. As the author says: "It seems as though mankind had a right to a knowledge of the value of the foods which a bountiful nature has provided for his use. Even among educated persons one may hear the grossest errors of judgment regarding the nutritive value of a hen's egg and few of those who eat in restaurants realize that the greater quota of nourishment which is brought to them lies not in the specific dish served, but in the bread and butter which ostensibly is presented as a gift."

Poisons and Habit Forming Drugs, A Digest of Laws and Regulations Relating to the Possession, Use, Sale and Manufacture of Poisons and Habit Forming Drugs Enacted During 1912 and 1913, Now in Force in the United States. By MARTIN J. WILBERT and MURRAY GALT MOTTER, Hygienic Laboratory, Public Health Service. Government Printing Office, Washington, 1913.

The Treatment of Rheumatic Infections. Press of Parke, Davis and Company, Detroit, 1913.

This is a review of the literature on the use of Phylacogens in the treatment of rheumatism, and will be found to contain full descriptive information from the laboratory, as well as articles appearing in medical literature.

W. B. Saunders Company, Publishers of Philadelphia and London, have just issued an entirely new eighty-eight page Illustrated Catalogue of their publications. As great care has evidently been taken in its production as in the manufacture of their books. It is an extremely handsome catalogue. It is a descriptive catalogue in the truest sense, telling you just what you will find in their books and showing you by specimen cuts the type of illustrations used. It is really an index to modern medical literature, describing some 250 books, including 30 new books and new editions.

A postal sent to W. B. Saunders Company, Philadelphia, will bring you a copy, and you should have one.

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ORIGINAL ARTICLES

THE IMPORTANCE OF PLAY AND RELAXATION TO HEALTH*

By HARLOW BROOKS, M.D.

Professor of Clinical Medicine in the New York University

An alleged wit has defined a doctor's prescription as a mixture of disagreeable substances which makes one feel so miserable that when he recovers from the effect he thinks that he feels better than he did before. The same pessimistic authority defines a diet list as a collection of all the foods which one does not want and the exclusion of all those which he does like. If this dark opinion be your attitude toward medical men, I appear before you this evening in a new guise, for I believe that I am to speak to you to-night in full favor of those things which are both good for you and good to you. I recall, however, that ancient adage, "Beware of the Trojans when they come bringing gifts," and hence I shall attempt to approach my subject most circumspectly and to consider it, in so far as I may, from the standpoint of a scientific problem whose solution is of great import to us all.

Among the primitive instincts of all animal life are those of self-preservation, of the desire for food and the perpetuation of species. Claiming a very close relationship to these essential and insistent vital motives is the desire to play. We find this instinct manifested in practically every grade of animal life from the insect up to mankind. The playfulness of the kitten, the games of birds and even those of reptiles are matters of the most commonplace and certain scientific observation. The frolics of puppies, of colts,

*Read in the Series of Medical Lectures given by the Medical Society of the Borough of the Bronx, Feb. 17, 1914.

of young calves and of all manner of our wild friends, but most beautiful of all the pranks of our own babies, are so commonplace and so much a part and parcel of life in its happier aspects that I need but to recall them to you to induce you to accept with me that play is indeed an essential and primitive part of all animal life. It is also readily shown that in most instances the plays of youth under natural conditions and in all grades of the scale of evolution are largely preparatory for the sterner obligations of adult life. The higher we ascend in the ladder of mental and nervous developments the more marked and evident does this instinct of play become and the greater its necessity. You are then, I hope, prepared to accept with me the axiom that play and relaxation are a part of life itself and since we find no such general instinct in nature, without a deep and important purpose, we must assume that in some way play is a necessary part of life and that as life becomes more complicated the necessity for it becomes the greater.

Man's recognition of this fact goes back as far as history, and the very earliest of history tells us that Adam and Eve were given one everlasting holiday, and had it not been for that very unfortunate vegetarian fad of our first militant ancestor it is quite probable that we all should be this very day joyfully gamboling about some beautiful park, instead of considering the wherewithal shall we be clothed and the office for to-morrow and the rent day of next month.

All the great nations of history have recognized the need for relaxation and recreation. We see this demonstrated even by the stern Spartans in their games and by their feast days. It is also evidenced by the art of ancient Greece and it is manifested to-day by our public parks, concerts, art collections, athletic games and zoological gardens. Practically every Government, be it more, or be it less paternal in type, has arranged for the play and relaxation of its people. The fiestas of the Latin people, the beer gardens and glorious music of those serious-minded scientists, the Germans, are but evidences of this impelling instinct and the necessity of its normal gratification for the public welfare. Even our own Government has taken cognizance of this instructive demand, and we see it recognized in the establishment of national playgrounds such as the Yellowstone and Glacier National Parks. Hardly now a State or a city of any pretense but what has its Yosemite, its Prospect Park, or its Bronx Zoo.

Napoleon's greatness was no more manifested by his great military operations than in his constructive establishment of art collections and his encouragement of architecture and of the numerous

similar institutions of France. Perhaps we should have even forgotten Great Cæsar's conquests had he not amused himself by the writing of them down. This is a form of amusement, however, which I am afraid some of you in common with myself may have looked upon it as anything but an innocent occupation when we were first attempting to describe that crucial bridge. So great a statesman as Patrick Henry even gave the object of life as "The pursuit of happiness."

National, State and Municipal Governments, despotic or popular, have thus since the time of history made the subject of play and relaxation a serious study and a public care. We hear of City Opera, of State Theaters, and of Public Playgrounds. Many, if not most of these, are designed not so much to educate as to amuse and to relax, and their establishment is a recognition of that instinctive craving within us for play and diversion, an instinct which then demands thoughtful attention.

In our convalescent wards at the hospitals we have found the necessity of the visiting quartette, of the Victrola, the books, games and of the pictures designed to entertain and divert. All these subjects have under such circumstances become matters of grave study and careful supervision. We have our professional play instructors, just as certain of the birds, the partridge family for example, have also theirs. The story-tellers of the Romans, of the Norsemen or those of our own Americans, the Apaches or the Comanches, are replaced by the trained story-tellers of our City Libraries and public schools. But although every one must recognize these general facts as I have stated them, how infrequently it is that we hear of any person carefully and studiously arranging for his play and relaxation. This is the point to which I wish to especially call your attention this evening, for I am convinced that there is great need for the individual to carefully instruct himself in these matters. A great medical scientist and teacher (Dr. V. C. Vaughn) was accustomed to tell his students that perhaps quite as much of success in life depended on the selection of a hobby or form relaxation, as in the choice of a profession. At least a certain part of life should be spent in preparation for old age. We store up money, fine books, art treasures and even friends and fame for our period of senility. It is equally, or more, important to store up diversion and relaxation for that period when the fires of ambition burn low and when the new and unaccustomed fail to longer attract. Do any of you know a more miserable existence than that of a once busy man in his old age, when work is no longer possible and when no diverting pastimes or pursuits have been cultivated to make old age the

reward and sweetness that it should be? A happy old age, as a happy adult life, must be a busy one, and when youth and the summer of life have been so spent, so tutored, so educated as to make old age still a busy and occupied period, it becomes as joyful as youth itself.

Perhaps we can most vividly bring out the necessity to the individual of serious consideration of this subject by first mentioning some of the disadvantages of those who are not so equipped. Prof. Bryant, in a recent number of *Popular Science*, has advanced the very probable theory that the world-wide inclination to the use of alcohol is primarily founded on a mental condition created artificially by this drug which simulates and perhaps replaces to a certain degree the normal instinct of relaxation and play. Psychologists tell us that crime itself is in large part founded on a perverted play instinct and is frequently but an evidence of abnormal desire for relaxation, for change. Habitual criminals are those who have in most instances few possibilities in the way of natural and innocent play, and criminals are now largely treated, as Oliver Wendel Holmes predicted, by education along these lines. The fact is well recognized, I believe, by all students of sociology. The sinister and stern, mental type, of those who view everything except work as a vanity and delusion is obvious to us all. Play we will and play we must, even though our play and relaxation may take on such abnormal bents as those of drunkenness or as the designing of punishment for others or even impel one singularly deficient in humanity and in sense of proportion to the joining of antivivisection movements.

All of us are familiar with persons who have made financial or perhaps professional successes and yet whose life is most unhappy, because no diversions or outside interests have been cultivated. Not infrequently such persons, though actually successful, derive very little true joy and satisfaction from life. A philosopher has truly said that peace, play and real joy cannot be purchased. The truest of joys lie within the individual himself, and unless the traits have been developed and nurtured a life, no matter how materially successful, becomes an unhappy one. Pray do not understand me to be an advocate of the life of pure pleasure. I entirely agree with that old philosopher who said that "Work is the greatest play of all," but variety is indeed the spice of existence, the bass but serves to bring out the beauty of the upper register of the violin or oboe. Contrast and change are as essential in congenial occupation as the mystery of night after the beauty of the sunny day. The one must be the foil, the guard of the other. Gifford

Pinchot has said that "The one best receipt for carrying responsibility easily is not to carry it all the time. The spring whose tension is never released must weaken, and the man who thinks about nothing but work is eventually consumed by it. In a sense, our best work is done in our play time." A well known New York physician, in speaking of vacations and of their necessity in modern life, has expressed the same idea, but in different words. He has said that many men can do twelve months' work in ten months, but no man can long continue to do twelve months' work in twelve months. Like most habits, those of play and relaxation become fixed and grooved as we age, even as do our likes and dislikes of persons, food or drink. Hence, the great importance of early training in these directions in order that the greatest benefits and the greatest aids for the future may be provided. I therefore particularly wish to call your attention to-night to the necessity for selecting in early life those pleasures or relaxations which are most apt to be beneficial in old age, or when one is most busy with the grim necessities of life. Cognizance in this respect must be taken of the future and of the lines of work most likely to be pursued by the individual. One would not train a boy destined for a marine career in horsemanship, or a ranchman of our great West in the sport of yachting or the art of salt-water fishing.

Perhaps the first essential to be considered in the selection of a hobby or method of relaxation is the accessibility of that method, not only now but in the probable future. A second important factor dependent upon the first is the possibility of such a method of relaxation remaining open and accessible throughout life without seriously compromising business or social necessities. This does not, of course, mean that one who takes up as his hobby, let us say baseball, must therefore expect to play the game all his life, for the most essential part of relaxation is often obtained not from the play itself, but from the mental diversion and interest in it and at times quite as much benefit may be obtained from an active interest in any sport as from active participation.

A third requirement for ideal play for any person is that it should give pleasure. Without this important attribute the full measure of benefit cannot be derived from any form of relaxation. The simple and solitary exercises in a gymnasium in no way approach in benefit those derived from games or competitions into which the spirit of pleasure and keen interest enter very largely. I question very much, for example, the utility of horseback riding for those to whom it is no joy, but a torture and agony.

In general, also, those diversions which present greatest benefit

to the individual are such as combine with pleasure the greatest possible change of action and thought from those avenues most accustomed in the work-a-day life.

It may, therefore, be observed that usually those forms of play are personally best which are most pleasant to the individual, unless his appetite in these directions has been abnormally cultivated or perverted. The natural instinct of a brain-worker is toward those forms of pleasure or relaxation which involve physical exercise. The professor loves his walks, his fishing trips or his hunting excursions. On the other hand, those who earn their daily bread and who carry on the ordinary functions of their life chiefly in a physical way, should seek their relaxation more in mental directions. The physical worker, for example, commonly receives his greatest satisfaction and benefit as to play and relaxation in reading or in some other mental avocation. It is indeed true that the best of play is oftentimes but a variety of work or study, a change rather than a rest.

The benefits of play and relaxation are not expressed only in mental terms. It is by no means only to make us happy that we need play and relaxation. It is quite as much necessary to make and to keep us physically well. Diverting pleasure rests and relieves the tired and overworked mind as does sleep. It is nearly as essential and quite as direct in its effect on the physical conditions of the body. Relaxation and play even effect the most elemental of the body functions. A high blood pressure may at times be quickly lowered by the peaceful strains of agreeable music, and the flagging and tired heart or muscles are stimulated by the martial strains of the military band. The thrill of the fife and the roll of the drum quicken the pulse and send up blood pressure more certainly and more promptly than do strychnine or digitalis. All of us recognize the delightful effects of music, properly designed to induce sleep. The purr of the cat and night notes of the thrush are but nature's lullabies. How frequently it is that a few pages of an interesting or amusing book will quiet the tired, jaded or depressed mind and induce good nature or sleep much more satisfactorily than any of the drugs which your doctor has in his saddlebags. Relaxation and diverting pleasure are better aids to digestion than the most potent ferments on the pharmacist's shelves. There is no more powerful stimulant to the appetite than congenial friends and agreeable conversation. These are indeed the best and safest of cocktails.

It is, therefore, well worth the time of any person, who is either busy or who expects so to be, to seriously study and consider this

important problem of play, that its more satisfactory results may assist him throughout life, which will at the same time become thereby more happy, perhaps longer and doubtless more useful.

Probably the most generally desirable single method of play or relaxation is reading. This is particularly true because the character or line of reading may be readily adapted to the particular likes or needs of the individual. I know a great mathematician, one of the greatest that this country has produced, whose chief relaxation, now that physical infirmities have cut off his customary physical pleasures, is the reading of detective stories. Another man, whose excursions have barely led him beyond the borders of New York, has made himself, by reading during his few hours of relaxation, an authority on polar exploration. His name has become a frequent one in the geography of both the Far North and of the Far South, and he has been one of the greatest sources of encouragement to many intrepid men who have actually carried out the field work of these arm-chair excursions. No matter what line of work a man may do, reading, once the habit has been formed, adds to his efficiency and work, and at the same time in itself affords for him at least a certain measure of relaxation and an increased interest in both his vocation and in his avocation.

Nature studies are possible for nearly every man who has even a few hours weekly to spend out-of-doors. An acquaintance of mine, a business man, who commuted for domestic reasons, adopted the study of the bird life of the bay on his trips to and from Staten Island. He has derived much pleasure and benefit from his study, and it has proven so interesting that his Sundays and holidays are spent in a similar manner, all without the loss of an hour from his business. Another friend, whose business connections prevented his taking a vacation far from the city, similarly occupied himself with the bird life about his suburban home. When, during the winter season, he moved to the city, he found the birds of Central Park quite sufficient to pleasantly occupy his spare time. Shortly his descriptions and his photographs of this apparently narrow and circumscribed subject became so important that the lesser matter of business has come to be replaced by his play, which has contributed much to the pleasure of all of us and to real science. So we might go on indefinitely. Nearly all the great geographical discoveries have been made by men who first in their regular life took up geography as a relaxation or side line of study. An indifferent theological student has become Vladimir Steffansen. Robert Peary deserted engineering problems for the discovery of the North Pole

and for his invaluable contributions to the geography of the Far North.

To be a play of staying powers, one which lasts, the game must possess something more than mere entertaining qualities. One soon tires of such a sport, and the relaxation which really lasts and endues uplifts almost without exception. Such is music, and more than infrequently this relaxation has become a contribution of great men to mankind for all time.

The love of the open and of nature has given the world Darwin and Huxley, who might perhaps have otherwise been barkeepers or clerks, in a ladies' furnishing store. Boys who would rather roam the woods and ply the seven seas than confine themselves in the office or schoolroom have produced men like Hornaday and Daniel Beard. The love of the beautiful has given us Raphael, Titian, Rembrandt and Rodin, it made of a soldier of Florence Michael Angelo.

The restless energy and love of the rougher side of nature in Lieutenant Pike gave America Minnesota, Wisconsin and Michigan, and the desire for the thrills of adventure in Lewis, Clarke and Fremont gave us the Great West. In fact, there can be but little question but that the choice of an avocation leads not infrequently to a happy and most useful vocation. The following of a pleasurable bent or diversion on the part of a normal individual is a tendency toward progress in the world, and the natural following out of such an instinct rarely leads to anything other than good things, happiness not only for the individual but for man. Happiness is perhaps correctly defined as mental health and without it mere physical health is incomplete and unsatisfactory.

For most of us, however, it is not to follow our avocations as callings, but as methods to an end and not, as in some of the cases which I have mentioned, the great objective itself. The value of any drug or person or method in this age of efficiency must be measured by the results produced. Let us recall then some of the direct results of diversion in everyday life. Whether we will or no we must have diversions, and if these be deliberately chosen and well cultivated they become as friends and obedient servants; whereas, if we allow them to choose us or to direct us, they become our masters and often a detriment to true happiness and progress, as exemplified in alcoholism, in the craze for gambling, in the chronic grouch, the muck-raker or bilious reformer.

The benefits of relaxation are by no means limited by what it gives to us in itself, even in pleasure, health and uplift. After the play, comes a return to work with renewed mind and refreshed

body. Relaxation and play may be well looked upon as a preparation for work and they are to be classed in the same light as sleep and food. None of our old sayings are more true or pertinent than that "All work and no play makes Jack a dull boy." Play is not to be looked upon as a luxury, but as a necessity, and as such its selection is indeed entitled to quite as much serious thought and careful education as in the choice and preparation for life's most serious work.

HEADACHES*

BY ERNST H. KOCH, M.D.

Louisville, Kentucky

In presenting the subject of headache for consideration, the writer recognizes he is suggesting a theme about which authors have disputed for years. While generally speaking headache is considered symptomatic, yet the disorder may be primary, and much confusion has arisen in attempting to clearly distinguish between the different varieties. The fact remains, however, that the patient usually complains of pain somewhere about the head, and this the physician is asked to immediately relieve, it matters not what may be the underlying cause.

There are so many causes of headache that it would be impossible in a short paper to discuss each one separately. The writer will therefore give a general classification of the disorder under five headings, as to location and causation, then briefly mention some of the more common forms usually observed.

(1) Unilateral head pain may depend upon hysteria, dysmenorrhea, trigeminal neuralgia, migraine, disease of the ear, disease of bone, cancer of the tongue, lithemia, weak or painful vision.

(2) Vertex pain may be due to anemia, chlorosis, hysteria, neurasthenia, epilepsy, disease of the uterus, the ovaries or the bladder.

(3) Frontal and temporal pain may be the result of anemia, neurasthenia, nephritis, uremia, dyspepsia, constipation, myalgia, rheumatism of the scalp, lithemia, eyestrain, glaucoma, iritis, disease of or foreign bodies in the nasopharynx, disease of the frontal sinus, syphilitic nodes or periostitis, and neuralgia of the fifth nerve.

(4) Occipital and cervical pain may be caused by epilepsy, neurasthenia, spinal irritation, meningitis, cerebellar tumors or lesions, dyspepsia and constipation, disease of the cervical vertebrae, cervico-

* Read before the West End Medical Society, of Louisville, Kentucky.

occipital myalgia and neuralgia, adenoids, middle ear disease, eye-strain, carious teeth, uterine disease, syphilis, nasopharyngeal disease, rheumatism, disease of the sphenoidal sinus, nephritis and uremia.

(5) Pain in the eyeballs may be the result of migraine, neuralgia of the fifth nerve, ophthalmoplegia interna, coryza, inflammation of the conjunctiva, iris or cornea, glaucoma, weak or painful vision.

The average physician not infrequently encounters the so-called ear disease headache, which is oftentimes combined with earache or mastoid pain. In such cases the pain is parietal, oftentimes widespread, and is usually increased by jaw movements. Pain on pressure behind the ear indicates that extension to the mastoid has ensued. Abscess of the brain may follow disease of the middle ear or labyrinth. The treatment is usually palliative, when the trouble is purely catarrhal or serous—heat, moist or dry, belladonna, aconite—or surgical where pus is present.

The various toxemias are common causes of headache. In lead poisoning, which is usually accompanied by severe nephritis, the headache is diffuse, in mild cases being described as a pressure or heavy feeling. In the more severe forms, however, the headache is extreme, associated with signs of mental hebetude, and at times with convulsive movements. The characteristic blue gum line, colic, the presence of albumin in the urine and other symptoms make the diagnosis certain. The therapy is directed toward prevention, principally by cleanliness, and elimination by salines.

In chronic nicotine poisoning, especially excessive cigarette smoking, occipital headache is frequently observed, and is commonly associated with pressure symptoms. Like other toxic headaches, this form results from nerve and blood pressure changes.

Acute alcoholism and acute morphinism are oftentimes associated with severe frontal headache. In the former an intense hyperesthesia of the scalp is quite characteristic. In the latter a basal or occipital headache is frequently accompanied by itching of the skin of the body. If the toxic materials are still operative, prompt enuresis and catharsis are indicated. Coffee or caffeine, in combination with the bromides or coal tar products, will be found beneficial. Gastric lavage is helpful.

In nephritic headache the pain is usually heavy rather than sharp, the patient complaining of pressure or heaviness, more rarely acute pain, in the forehead. Albumin in the urine, diminished urea excretion, high blood pressure and other signs of uremic poisoning confirm the diagnosis. The treatment depends upon the form of nephritis which may be present.

Diabetic headache occurs as a diffuse pressure, heaviness, or

neuralgia. Preceding diabetic coma the head pain becomes more severe. Sugar in the urine, thirst, itching of the skin, etc., establish the diagnosis. The therapy is that of diabetes in general.

In anemia and chlorosis the headache is intensely severe and continuous, and pain involves the entire head. The diagnosis is established chiefly by the color and modified physical condition of the patient, which may be confirmed by blood examination. The iron salts, arsenic, proper food and sanitation will usually be sufficient to afford relief. In cases of this character preparations containing acetanilid do harm, because they interfere with the iron oxygen interaction in the red blood cells, thus diminishing the functional capacity of the already reduced iron content of the cell.

Gastrointestinal headache is frequently reflex in character, such as that induced by an "empty" or "hungry" stomach. Similarly various forms of indigestion are accompanied by dull or severe headache chiefly frontal. Most migraine attacks have definite gastrointestinal disturbances as forerunners. The headache of constipation is frequently a sense of pressure oftentimes relieved by a free stool.

Headache is commonly an obstinate symptom of the infectious diseases, particularly influenza, in which the pain is usually occipital. It is low in grade, rarely advancing to the sharp pain of neuralgia. It develops after the slightest mental effort, such as reading a few lines of print, etc. There may be no other definite symptoms, and the patient does not suffer at night, nor when walking. Such a headache may persist for weeks or months. The proper treatment is massage of the back of the head, hot baths, frequent feeding, two or three weeks rest cure. If the patient is unable to rest in bed, moderate exercise may be permitted. Free catharsis is desirable. Combinations of bromides and analgesics may at times be necessary, but opiates are to be avoided.

To consider syphilitic, neurasthenic, hysterical and traumatic headaches, with those of other surgical conditions, would not only unduly prolong this paper, but would make the subject larger than time will permit discussing.

DISCUSSION

DR. H. H. GRANT: The subject of headache is entirely too large to be thoroughly discussed in one evening, and for practical purposes therefore it would appear advisable to exclude from consideration structural headaches and discuss the functional variety, this being the type concerning which the general practitioner is most interested. Of course the headache which accompanies structural changes is entirely dependent thereon, and proper treatment of the structural lesion is the primary object to be considered.

When the physician thinks about headache it is the functional variety he has in mind, the type for which he does not know the cause; and his

treatment must therefore be directed toward controlling the symptoms rather than curing the underlying condition whatever it may be. For instance, if the headache owes its origin to an infectious disease, relief cannot be expected until the causative disease has been dissipated. If due to gastrointestinal disturbance, it may be readily relieved by directing attention to the diet and instituting free purgation.

The types of headache which as a rule are most distressing are those of reflex character, migraine being one of the most trying to both the patient and the physician. For example, the migraine frequently observed in women at the menstrual period may resist all methods of treatment, and continue to recur month after month accompanied by vomiting and violent gastrointestinal disturbances. This is one of the severest forms, and is usually described by the patient as a "sick headache."

In the headaches caused by indulgence in alcohol, those resulting from temporary suppression of the secretions from exposure to cold, or due in a measure to so-called neuralgic disorders, of course the underlying causative condition indicates the treatment which should be employed.

The types of headache which have always given me the most concern are those where the cause could not be determined, i. e., the reflex variety for which no reasonable explanation could be offered, the treatment in such cases being necessarily directed almost exclusively to control of the symptoms. General practitioners of medicine are anxious to ascertain what can be done in the headaches which cannot really be classified, in which the exact cause cannot be determined, whether they are reflex or nervous in origin, whether due to a beginning acute infectious disease, or whether they are dependent upon diabetes or other interference with kidney function. These are really the functional headaches which the physician has in mind, and temporarily at least they must be treated symptomatically. Remedial agents therefore should be directed toward the control of increased bloodpressure, to general improvement of function of the emunctories (kidneys, bowels, skin), together with purgation and regulation of the diet. Mitigation of the pain, however, is preeminently demanded and something must be done promptly. It is a curious fact that patients complain more of headache than of pain in any other situation, and relief has been greatly facilitated by certain remedies recently introduced.

While general medicine has interested me less during the last ten years than formerly, the coal tar preparations have been found the safest and most satisfactory for relief of headache. It is presumed, of course, that requisite attention has already been given the emunctories. Of the coal tar preparations, while antipyrine and acetanilide have produced good results, phenacetine in five grain doses has been the most beneficial and satisfactory. Relief has also accrued in many instances from aspirine, and in a certain proportion of cases from urotropine.

Headache is a most annoying concomitant of many diseases and must be immediately relieved, for which purpose the coal tar products are the most valuable remedies at our command. When the addition of an opiate becomes necessary, my preference has been for either heroin or codeine.

DR. J. B. LUKINS: Headache is a common symptom which may accompany many diseases. When due to structural changes it is not difficult of diagnosis, but the functional variety is oftentimes exceedingly puzzling. It is believed that eyestrain, eye disease, etc., as a cause of headache is being vastly overdone. It is an almost daily occurrence that patients who have suffered periodically from headache come in wearing glasses, and when asked why they reply that Doctor so and so said "eye trouble" was the cause of their headaches. Had they gone to a stomach specialist, most likely they would have been told that hyperacidity or decreased acidity was the cause of their headaches! Glasses do not always relieve these patients. Of course it is true that in many instances headache is caused by the condition of the eyes, but headache will not be relieved by the application of glasses where the only abnormality about the eye is a slight degree of astigmatism.

It has been my practice to administer phenacetine in the treatment of headaches of children, but in adults something stronger is required, and while acetanilid is more dangerous it gives better results. Coal tar derivatives have been quite generally condemned as unsafe, but in the treatment of headaches they are the most effective remedies at our command, and if used judiciously they may be safely employed.

DR. F. H. JOHNBØEKE: There is one variety of headache to which attention is seldom directed, i. e., due to malaria. Several cases of this character have come under my observation where the patients suffered with headache daily, and which persisted three or four weeks before the cause was ascertained and relief obtained. If such patients were more closely watched, and the time noted each day when the headache developed, the malarial origin could be easily determined. In cases of this kind nothing will afford relief except quinine, or the ancient antiperiodic Warburg's tincture. At times the latter gives better results than quinine.

Of the coal tar preparations phenacetine is safest, and larger doses may be administered with more assurance of not doing harm than by using any of the others. Considerable depression occasionally follows the employment of acetanilide, but such an effect is seldom noted from phenacetine in either young or old people. Acetanilide has been known to produce a depressing effect even when used on abrasions as a dressing. When opiates become necessary they should be administered only in minute doses.

DR. O. H. KELSALL: One of the most severe cases of headache that has ever come under my observation, the subsequent history proved, was due to a syphilitic lesion in the brain. Pain was intense over the left temporal region, and the man was treated for a month without relief. He denied a specific history, and a Wassermann test was not made. Subsequently he had an attack resembling apoplexy, which led to the suspicion of specific disease. Neosalvarsan was administered and was followed by almost immediate relief. The man had paralysis such as might occur from apoplexy, the gumma having probably increased in size and causing paralysis from pressure. Within thirty six hours after administration of neosalvarsan there was a decided improvement, and recovery was soon complete.

A rather frequent cause of headache is glaucoma. In the absence of a correct diagnosis such cases may be treated under various hypotheses for a considerable time without benefit, and when the patient is referred to the specialist and the diagnosis of glaucoma made prompt relief generally follows proper treatment.

Malaria may be the cause of unilateral or even universal headache, such cases being observed with considerable frequency. Of course when a patient comes to the physician with headache, the first indication is to relieve this symptom, and second to determine the cause if possible.

In the treatment of headache, especially the frequently recurring variety, one should be careful about the administration of opiates, because of the danger of formation of the habit. It has been my custom to employ coal tar preparations, mainly phenacetine fortified with citrate of caffeine, as a heart stimulant. In the so-called migraine, which is usually associated with gastrointestinal disturbances and deficiency of kidney function, relief may oftentimes be obtained from alkaline eliminative treatment. Purgation by salines, and lithia half an hour before meals in carbonated water. This clears the mucus from the stomach, promotes liver and kidney action, and entire relief of these recurrent attacks of migraine may be secured from such treatment.

DR. I. A. ARNOLD: There have been enumerated all kinds of headaches caused by various disorders, but thus far no one has mentioned a real headache, i. e., one which is produced primarily within the brain cells. This might be called a functional headache due to nervous combustion or nervous congestion. It is a nervous sick headache having a regular cycle, developing at certain periods, and which is not influenced by any method of treatment except the hypodermic administration of morphine. The stomach rejects all food as well as medicines, and the entire nervous energy of

the body seems to be absorbed by the brain cells. So long as the patient can be kept physically active, however, thus exhausting this nervous energy, headache does not develop; but if the nervous energy is allowed to accumulate by inactivity, the pulse becomes full and bounding, the ideas of the patient become confused, there occurs an explosion of the accumulated nervous energy, and intense headache.

The coal tar preparations are useful in some forms of headache, but where there is a full bounding pulse, as in the cases mentioned, it must be reduced by other remedies. The higher the pulse rate the more nervous energy is produced. This type of headache as a rule occurs in so-called high tempered people.

DR. T. E. GOSNELL: In the treatment of headache by combining phenacetine with bromo-caffeine better results can be secured than by giving phenacetine alone. The character of headache described by the previous speaker is more than likely due to anemia of the brain or nervous exhaustion rather than as he states from explosion of accumulated nervous energy.

DR. E. L. HEFLIN: As to the use of caffeine to prevent depression from the coal tar products, Dr. H. A. Hare emphasizes the fact that bicarbonate of soda is much better than caffeine to counteract the effects of acetanilide or phenacetine. He says bicarbonate of soda has a much better effect than caffeine, either the citrate or alkaloid, that it actually prevents depression.

DR. J. K. FREEMAN: In discussing this subject it must be remembered there are headaches—and headaches! If the cause can be determined with any degree of accuracy, some of the patients can be relieved. The drug stores are filled with remedies that may alleviate the symptoms, but there is a cause for the headache which these remedies cannot reach. When called upon to treat a patient with headache, the physician must produce immediate relief, and the coal tar preparations offer the best prospects; but they should always be combined with caffeine or strychnine.

The trouble about headaches is that they are so difficult to analyze. There are headaches caused by numerous different disorders about the body, and the headache of eyestrain occurs in a different locality from that due to uterine disease. If the patient be asked where her head hurts, and she replies that she has a brow headache, one may be sure it is not due to uterine disease; but if she says it hurts on top, then it may be caused by some uterine disorder and the physician is not performing his whole duty unless he makes a thorough pelvic examination.

Of course it is all very beautiful when a patient says that he has an intense pain over his right eye which develops every morning at ten o'clock! After a few doses of quinine the headache disappears. In other instances things are not so accurately described, and the physician is handicapped; therefore one has to be careful in analyzing the symptoms that the proper remedies may be prescribed.

It is undoubted that many headaches are due to digestive disorders and mechanical displacements, therefore the internist and the surgeon must work hand in hand in the treatment of headaches.

THE CORRELATION AND UNIFICATION OF PSYCHOTHERAPY

By HENRY S. MUNRO, M.D.

Omaha, Neb.

About four years ago, a young man, twenty-eight years of age, a carpenter, an "inside finisher," came to me upon the advice of a physician, who stated that he could find nothing wrong with him in any way; hence, "his illness must be in his mind."

He was five feet ten inches high, weighed 165 pounds, blood count and urine were normal, his facial expression indicated average health, and it was easy to see why the physician regarded him as a man who "imagined" he was sick.

For four years this man had been unable to work, on account of weakness and fatigue. He had no family to fall back upon, was economically weak, and the outlook for him was anything but hopeful, more especially since he had been constantly seeking aid for four years, had been deprived of his appendix, and felt that he was at the end of his career, "afar out at sea without star or compass," as physicians could discover nothing more to treat.

He was emotional and anxious about his condition, especially since numerous physicians had been unable to find out the cause of his illness, and his attitude toward me, after I had dealt with him kindly and won his confidence, was more like that of a four-year-old child toward his father than that of a grown man.

He had acquired only a common school education, was deeply interested in religious subjects, believed firmly in the conventional religious teachings of the present day, and was obsessed with the belief that his illness was the punishment "sent down upon him from above for his evil thoughts."

A stepfather came into his life about the time of the beginning of his illness, six years prior to coming to me, and he felt that this "intruder" had been responsible for his unhappiness, as well as for his physical weakness. He had turned to the church for consolation for a while, but his attendance upon religious services had made him more nervous, so he decided that he was not well enough to seek further aid from that source.

I found just what had been the history of his sexual life, how long he had masturbated, when he had ceased, how often he had nocturnal emissions, what social life he had, and many other things that are the common experiences of every life, with only differences in degree as well as in intensity of experience.

After seeing this patient three times, during which I had spent an hour or more with him at each office visit, I knew him psychologically as well as physically, and could easily see that the clinical picture before me was the logical outcome of all that had gone before him; that heredity and environment had created the man, true to psychological, physiological and physical laws.

He was stopping at a place four miles from my office; after making him feel that I understood his case, that I was master of the situation, that he was a sick man and needed what I would designate as psychological, physiological and physical reconstruction, as-

suring him that his was not a condition which would be benefited by surgery, medicine or electricity, and exacting a promise from him to faithfully cooperate with me in my efforts to ameliorate his condition, I gave him the following prescription:

"I want you to take a good dose of castor oil at bed time to-night, and a saline purgative in the morning, regardless of the effect of the castor oil. I do not want you to eat another mouthful of food for six days, but to drink a glass of water every hour while you are awake, and to take an enema of half a gallon of tepid water at bed time every night during this six day fast." I carefully explained to him how to place himself in the knee chest position while using the enema, and insisted that he walk the four mile distance to my office every day, to give me an opportunity to talk to him.

This was my first experience with a fast and I desired to know its effect at first hand.

During the time which he afterward spent in my office I told him the truth as science has revealed it to us concerning every phase of his life's history, made him to see life as science has enabled us to see it, as best I could according to his limited capacity, and thus set him free from the tyranny of ignorance and superstition. There was no phase of his life's history upon which he was not re-educated, and I started him out with a new purview of life, determined to rely upon himself; to make the most of his opportunities as best he could with his limited equipment.

To go back to the breaking of his fast, I had him take strained orange juice, as much as he could ingest, every hour for the first day. On the following day he was allowed a glass of milk every two hours, alternating it with Bulgarian milk. This was continued for a week, together with as many oranges as he cared to eat, after which he was allowed a large variety of fruit and raw vegetables. After the first week the milk was gradually increased until he was taking four quarts per day, but as soon as he began his milk diet he walked to and from my office every day, *making an eight mile walk daily.*

In addition to this, I gave him instruction in a system of gymnastic exercises, which, together with his eight mile walk, were well calculated to build up and strengthen every motor cell in his body.

After he had been upon an exclusive lactovegetarian diet for two weeks, I allowed him to have a piece of dry toast and butter three times per day, and during the fourth week added four eggs per day to his dietary, continuing his reeducation all the while, and occasionally supplementing my psychotherapeutic procedure by sug-

gestions given in the hypnotic state for the purpose of reinstating his normal ego.

At the end of a month, I advised him to go to work on a farm for six months or more and by this means win for himself a strong physical constitution, during which time he should drink all of the milk that he could get, eat fruit and green vegetables in abundance, only sparingly of bread, meat but once per day, and to practice deep breathing every hour, even while walking between the plow handles.

I impressed on him that such measures of gaining a high order of psychophysiological and physical potential in the cells of one's organism were no experiment with me, nor were they merely a matter of theoretical knowledge, but a part of my own life's experience.

As to the results, he left me after one month, literally a new man, courageous, happy, with every element of his organism functioning normally, and veritably "pulling against the bit" to get back to the farm, close to the bosom of nature, and to live the life whereby his forefathers had won bone, brawn, muscle and sinew. Six months later he dropped into see me and challenged me to prove that he could not put me upon the ground. I promised to meet him in the park some day and there give him an opportunity to prove to me in this primitive way that he had been true to his promise, made as he was leaving my office, to "make good."

As to the effect of that "fast" upon me, I threw off ten pounds of garbage, slop, sick flesh, unstable proteid compounds, and, after the renewal of this loss in weight with clean liquid protein (milk), for one time in my life I enjoyed the feeling of euphoria that comes to one who has experienced a rapid change in the chemistry of his body and feels that he needs no further evidence to convince him that his metabolism is right. Since then I have "lived the life," one meal per day, besides a breakfast and lunch of milk and fruit only, save as I violate it by smoking a half dozen or more cigars per day.

To those who desire to attempt to comprehend the biochemistry of one's metabolism in technical phraseology, I would advise that he consult the enormous literature that is rapidly accumulating upon this subject as the result of the work of scores of physicians who are striving to catalogue the numerous compounds found in various portions of the human body resulting from meat, starch, sugar and fat decomposition, as well as to carefully consider the divergent views being expressed as to the significance of "Alimentary Toxemia," all of which are interesting and instructive, particularly in so

far as they go to show that positive knowledge is evanescent, that as soon as you think you have it in hand, like a mirage, it looms up in the distance as an inviting oasis a thousand miles ahead of you.

Turnip tops boiled with a small quantity of fat pork or butter, with raw young onions and corn or whole wheat bread, taken along with a glass or two of buttermilk, as a diet once per day for thirty days, will relieve any case of intestinal putrefaction, such as exists in "alimentary toxemia," provided the patient can be induced to adopt the healthful habits of life in other relations to his environment.

But the adaptation of each and every individual is determined by hereditary and environmental factors, which determine his emotional fixations, and the normal ego is powerless to choose a rational course in the presence of a stronger emotion. Before the individual can be induced to adopt the healthful habits of life, he must be released from the tyranny of these subconscious emotional fixations.

In the case reported above, I found that fear was at the bottom of this young man's entire disease syndrome, and while correcting the physical effects resulting therefrom, by disintoxication through fasting, *I proceeded to disintoxicate him psychically* by giving him a sound philosophy of life, free from cant, dogma and narrowness, in accordance with modern evolutionary theories that are exercising such a tremendous influence upon the practice of medicine at the present time. In other words, I equipped him with such knowledge of the facts of life as to free him from the fetters cast upon him by unfortunate heredity and environment.

REPORT OF A CASE OF PUERPERAL SEPSIS*

By DR. L. E. CURTICE

Buffalo, N. Y.

Mr. President and fellow members, I wish to report to you to-night a case which I had intended to report at the November meeting, when details, of which the records are lacking, were more fresh in my mind, but sickness on my part prevented me from doing it then, so I will give it to you now, trusting you will overlook these lacking details.

The case is one of uterine inertia necessitating forcible dilatation and forceps delivery, followed by puerperal sepsis and complicated with pleurisy and pneumonia and treated with phylacogens with the results, a living baby, and note you, recovery of the mother.

Perhaps a short preliminary history of the patient would not be

*Read before the Practitioners Club, Buffalo, N. Y., February 6, 1913.

amiss and might be of some interest in the case. During the summer of 1911, the patient, then Miss H., aged 21, first consulted me. She complained of weakness, loss of appetite and a slight cough. Examination revealed a normal temperature, pulse rapid, about 98, but otherwise the heart was normal, hemaglobin 75 per cent, and there were two small areas in left lung, one in apex, the other at base, which were suspicious. A Moro test proved negative, as did also repeated examinations of the sputum. Under iron and other tonics, dietetic and hygienic treatment, the lungs gradually cleared up, except for a halty or jerky respiration and an occasional moist rale over the affected areas, the hemaglobin reached 90 per cent.

About this time, the young lady, thinking herself well, but without consulting her physician, decided to launch her boat upon the seas of matrimony, which for her in some respects proved quite stormy.

The next time I saw her was September 3, 1912, when she came to my office to engage me for her confinement, expected October 1, 1912. She was decidedly anemic, legs and ankles swollen, and a later examination of the urine revealed albumen in appreciable quantity. I at once put her upon a milk diet, with hot baths and diuretics, and succeeded in diminishing the swelling and albumen. On September 18, 1912, she was taken with labor pains and, digital examination revealing slight dilatation of the os. She was sent to the hospital in the afternoon, pains more or less constant, but ineffectual for three days and three nights, notwithstanding all efforts to assist her, which included every known agent excepting pituitrin, which I will most certainly try if I have another similar case. The bags of water had broken and the water all drained away, so that the life of the fetus was endangered; though dilation was not more than the size of a dollar and there was prolapse of the cord, something had to be done and done immediately. She was anesthetized, and under the strictest aseptic and antiseptic precautions, with rubber gloves I forcibly dilated the os manually and delivered the child with forceps, but not without considerable laceration of the parts, which seemed spongy and tore like so much liver. Delivery was completed about 11:30 P. M. September 21, 1912, the child weighing 7 pounds.

I repaired the tears as best I could, taking eight sutures of silk worm gut and two sutures of cat gut in the os and five sutures of silk worm in the perineum, every one of which sloughed out. The next day her temperature was 99, pulse 98, respiration 24; on the 23d, or the second day after delivery, the temperature was 100.

pulse 120, respiration 26, and on the 24th temperature rose to 101.8, pulse and respiration same as on the 25th. The temperature ranged between 101 and 102, with pulse and respiration about the same, and symptoms of pleurisy developed, which were quite apparent on the 26th. The lochia was very offensive and the raw surfaces about the perineum and os were covered with a dirty exudate not unlike a diphtheritic membrane.

The temperature was 103.4 in the afternoon, but dropped to 100 on the morning of the 26th, but again rose to 103.4 in the afternoon and pneumonia, involving the lower lobe of the left lung, was discovered. It was then quite apparent that I had a case of *septic pleuropneumonia*.

Stimulants, such as strychnine, brandy and digalen, were given hypodermically, Bashams mixture and nourishing liquid foods were given internally, saline, enemas, iodine douches and antiseptic dressings were used locally, with mustard pastes, cupping and pneumonia jacket to lungs.

Throughout the sickness the patient complained so much of a dry throat and inability to swallow that a specialist was called in.

Her general condition grew gradually worse, though her temperature was not high, not above 103.5, and in fact most of the time much lower, but the pulse and general aspect of the case was alarming, so on September 30th, the tenth day after delivery, at 5 P. M. I gave 5-cc pneumonia phylacogen subcutaneously, followed with but slight changes in the temperature, which remained about 102, or much perceptible change in her general condition; at 10 P. M. the same day I gave 5-cc mixed infection phylacogen. The next morning, October 1st, her temperature was 101, pulse 130, respiration 40, and at 11 A. M. I gave 5-cc pneumonia phylacogen, and repeated the dose at 5 P. M. This was followed by a rise in temperature to 103, which later dropped to 101.8. At 11.30 P. M. I gave mixed infection phylacogen. On October 2d, early, her temperature had dropped to 100.4, pulse 130, respiration 26. At 10 A. M. I gave 5-cc pneumonia phylacogen and repeated the dose at 5 P. M., and at 11 P. M. gave 5-cc mixed infection phylacogen.

On October 3d the A. M. temperature was 101, pulse 120, respiration 32. At 10 A. M. I gave her 5-cc pneumonia phylacogen. The evening temperature was 99, pulse 130, respiration 48. Though no later rise is recorded, my recollections are that there was one, for at 11 P. M. I gave 5-cc mixed infection phylacogen.

October 4th, A. M., temperature was 99, pulse 100, respiration 26. P. M. temperature was 100, pulse 130, respiration 44. 6 P. M. I gave 5-cc pneumonia phylacogen. 8 P. M. temperature 99, pulse 100, respiration 48.

October 5th, A. M., temperature 99, pulse 130, respiration 40. P. M. temperature 99.8, pulse 130, respiration 36. 6 P. M. 5-cc pneumonia phylacogen.

The temperature for the next seven days ranged from 98 to 99, but on October 12th shot up to 100, when I aspirated the left pleura and drew off 32 ounces of a straw-colored serous fluid slightly turbid; settlings from this were examined for T. B., as that was the germ expected, but it was not found.

On October 15th the temperature again dropped to normal, ranging to 99 until October 18th, when it rose to 100.

October 19th, with the assistance of Dr. Colton, we inserted one of his silver drainage tubes in the seventh interspace post axillary line, and from which drained and continued to flow a quantity of creamy pus.

October 20th the temperature was normal, but was followed by a rise on the 23d, 25th, 26th and 28th, due to blocking of the tube by thickened pus, as the temperature returned to normal after clearing it of the obstruction.

November 15th the tube was removed. The opening healed in a few days and the patient made a slow but sure recovery, with some impairment of respiration in lower lobe of left lung.

I wish to give due credit to Drs. Irving Potter and A. J. Colton for valuable council and advice in this case.

While I make this report both because of the complications and treatment by phylacogens, calling your attention especially to the rise and fall of the temperature before and after giving same, I cannot close without firing at least one shot of criticism at it, by particularly directing your attention to the fact that this was a septic condition and that the temperature came down on the seventh day after the apparent onset of the pneumonia. Question, was it bound to come down or did the pneumonia phylacogen bring it down?

One swallow don't make a summer, and one case don't prove anything.

NUCLEINATE OF SODIUM IN THE TREATMENT OF DEMENTIA PRECOX

ABSTRACT OF A PAPER

By PROFESSOR JULIUS DONATH, BUDAPEST

Professor Donath, at the preceding International Congress in Budapest, published the results which he had obtained by subcutaneous injections of nucleinate of sodium in the treatment of general paralysis. He was able to prove that, by this treatment,

remissions, ameliorations and recovery of working power ensue in a considerably larger percentage than is spontaneously the case.

These favorable results have since been confirmed by a number of authors, O. Fischer, Hussels, Jurmann, Tsiminakis, etc. The same idea which guided him, namely, that in general paralysis toxic products of metabolism are found which should be destroyed by nucleinate of sodium, working through fever and the leucocytosis, that is to say through the increased oxidation, induced him, October, 1907, to adopt the same treatment in cases of dementia precox.

For here too toxic products probably circulate, but naturally of other origin and kind than in cases of paralysis.

This is favored by states of mental confusion in dementia precox, resembling psychoses of an undoubtedly toxic infectious nature, the torpor reminding one of myxedema, therefore something like thyroid intoxication; besides, the leucocytosis found by various investigators is known to be a reaction on intruded bacteria and toxines; further, the parts which tuberculosis and syphilis appear to play therein, and, finally, the decomposing ferments found by Fauser, by means of Abderhalden's methods, in the serum of dementia precox patients against the substances of germinal glands.

To these arguments also add the curative effects observed in dementia precox in consequence of typhoid fever and suppurating processes, similarly to that in general paralysis. Lépine arrived at good results from nucleinate of sodium in cases of maniac depressant psychoses. If he was not successful in cases of dementia precox, still the cause may be the insufficient quantities used by him, and the same applies to Itten. The quantities used by Prof. Donath were on an average $2\frac{1}{2}$ times more than those employed by these writers; besides, he had to do with recent cases. Halvar Lundvall, who established, by systematic blood corpuscle counting, the regular increase of leucocytes in states of excitement which sometimes precede it, has lately obtained most remarkable results with intensive treatment by nucleinate of sodium.

Prof. Donath, who began his experiments in October, 1907, quite independently of these authors, employs solutions of 10 per cent. of nucleinate of sodium, the separate doses rising from 0.5-5.0 grams, and gives from 8 to 12 injections at intervals of 5 days. His results are as follows: Out of 14 dementia precox patients who had been treated with nucleinate of sodium 3 were cured, that is to say, they recovered their full powers and seemed to be perfectly healthy; 5 were improved, 2 of these were able to work again; 3 cases, after a temporary improvement, became worse; 3 cases remained uncured.

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JOHN W. WAINWRIGHT, M.D., EDITOR

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EDITORIALS

THE MANAGEMENT OF THE CORD

It appears to me as though the literature relating to the management of the Umbilical Cord is the most fascinating in all the realm of medicine. If any one should pick up a copy of *Das Weib* and meet Ploss's descriptions of the handling of the cord in civilized and savage states, it would rivet his attention, provided he understood the language. Or should any one skim through the writings of American writers of the fifty years from Dewees to Dickinson (say 1850 to 1900 A. D.), he must admit that the aforesaid literature is both interesting and immense. To quote from the first author, "There is no one circumstance that so largely and certainly contributes to divert nature from her proper course as the persuasion that art can always benefit her." The second author questions, "Is a sloughing process, at the child's navel, consistent with Asepsis in Child-bed?" and recommends that the cord be cut off at the abdomen and the wound be treated like a clean surgical wound, using ligature and suture as indicated.

At a glance it might seem as though the two opinions were as far apart as the poles, but, if environment be considered, then it will appear that both are right, one applying with truth to domestic or household practice, the other to the conditions that should obtain in a modern maternity hospital.

If nature or the lower animals teach us anything it is that the umbilical cord will do perfectly well if left to itself. In fact, before Dewees's time it was considered unnecessary to ligate the cord. He really had to insist that not to apply the ligature was carelessness. His rules are: 1st. When respiration is established, either spontaneously or by artificial means, then apply a ligature to the cord, provided pulsation has ceased in it; but not until then. 2d. Do not apply a ligature to the placental end of the cord, inasmuch as leaving it open yields two or three ounces of blood, allows the vessels of the placenta to empty themselves, diminishes its bulk, and the resultant contraction serves to disengage the placenta from the uterine surface, thus favoring quick expulsion. 3d. In twin pregnancies two ligatures (with incision between them) must be used: that the child, yet in the womb, may not bleed to death.

The *English Playfair* states: "It is usual, not essential, to place a second ligature. The latter is perhaps of some use by retaining the blood, increasing the size of the placenta, and favoring its more ready expulsion by uterine contraction." My personal experience is that tying with two ligatures, and cutting between, means manual compression or Crede's Method, but that the use of one ligature, and allowing the placenta to drain, means that the uterus contracts, follows the shrinking placenta and bites off or tears off the processes which fix it to the uterus.

In obstetrics and elsewhere there are exceptions, but the usual will be found as stated. Nor can it be urged that the men of Dewees's day were unfamiliar with the so-called Crede's Method. If so, what do these words mean: "Should the uterus be found placid, brisk frictions with the open hand, with occasional grasping pressure of the fingers, should be instantly made." This does not sound like punching the woman in the belly with the clenched fist, but it does appear like a properly carried out Crede manipulation. It would appear as though use of a single ligature, for the child's sake, rendered the manipulation unnecessary as a preliminary to placental expulsion: consequently, it is usually referred to as a method of expelling post partem clots and "should be persisted in until the uterus becomes very hard and disposed to retire into the pelvic cavity."

One great factor in furthering the use of two ligatures is the question of additional soiling of the bed. This may be avoided by using a bowl or pus-pan as a drainage receptacle, in place of allowing a free flow into the sheets. I have tried many means and ways of dressing the navel. There is only one rule and that is, use a dry dressing in order that the process (mumification) may be furthered. Boric Acid is usual and satisfactory.

SUMMARY

There is a distinct advantage in not ligating the placental end of the umbilical cord. This was well known fifty years ago. Ligating both ends of the cord and then cutting between them increases the need for using Crede's Method, with its possible traumatisms.

DOUGLAS H. STEWART, M.D.

RADIUM IN CANCER

At a meeting of the American Society for the Control of Cancer recently held in New York, statistics were presented by Mr. Frederick L. Hoffman, statistician of the Prudential Assurance Society, who has made a close and exhaustive study of the prevalence and mortality of cancer. He asserted that 75,000 adults died from cancer last year in the United States alone, while 500,000 died from it in all civilized countries. He declared cancer essentially a disease of civilization, practically unknown among primitive people and savage tribes. Discussing the radium cure for cancer, Mr. Hoffman said that a careful study of hundreds of reported cures had convinced him that the patients were not really suffering from cancer. He denied that any cure had been effected by any other means than surgical operative procedures, and urged immediate operation as the one safe treatment for any cancerous growth, however insignificant. The deaths from this disease he declared have practically doubled in the last forty years; that the death rate increases at the rate of 25 per cent. every decade. Statistics which he had gathered concerning the disease proved to him that no operator for cancer had ever been infected by it, that no person ever inherited it or passed it as an infection to another; that all persons are liable

to be attacked after they reach maturity, most often after the age of 40 years. He declared that there are localities in the United States where cancer prevails much more largely than elsewhere, and that a knowledge of why this is so would be of much more value than seeking in laboratories to find a germ that causes it. Mr. Hoffman objected to the term cancer as being misleading, for the reason that there are various growths differing in character now called cancer which should not be so.

Prof. James Ewing, pathologist of Cornell University Medical School, also addressed the audience and disputed Mr. Hoffman's statements. He declared that cancer was not only prevalent throughout the whole human race, but that, far from being a disease of civilization, it is prevalent in practically all lower animals, being found even among trout and codfish, which perished from it in great numbers.

Dr. Ewing also disagreed with Mr. Hoffman in his statement of the effect of radium in the treatment of cancer. He declared that cancerous growths had been cured by radium when they were local and when they had been treated before the poisonous toxins had spread throughout the system. The limits of radium treatment were confined to a depth of one and a half to two inches, as that is the penetrating power of the rays. New ways are constantly being discovered as to the methods to apply radium so that its curative power will be extended to even the most malignant forms of the disease. He asserted that very large doses of radium are dangerous and pointed out that the correct dosage had not yet been determined and much experimenting was needed in this direction.

All of which proves that statistics sometimes disagree with determined facts, and that while radium does in properly selected cases effect relief if not absolute cure in cancer. We are yet, however, far from understanding the best means of applying the element. With this knowledge, which it is hoped will be speedily forthcoming, we will understand its limitations. In the meantime, it is hoped that, if not radium, some other effective cure for this dread disease will be found, and while this good work goes on we should not neglect surgical procedures, especially in the earlier

stages of the disease, for up to the present time surgery offers the only radical cure.

TYPHOID FEVER AN ACCIDENT?

Can typhoid infection be classed as an accident? Undoubtedly it can, for it comes under that class of diseases for which one can obtain casualty insurance.

Webster's New International Dictionary, 1913, defines an accident, "a befalling; an event that takes place without one's foresight or expectation; an undesigned, sudden, and unexpected event; chance; contingency; often an *undesigned and unforeseen occurrence of an afflictive or unfortunate character*." Typhoid, being a preventable disease, should it be considered accidental when one becomes infected through undesigned and unforeseen occurrence? If an accident, would it come under the liability acts because of negligence, as would an injury from a careless or unsafe construction or obstruction to a highway, rendering the municipality, county, State or Government liable for damages? To give a concrete example: If the health authorities or inspectors allow a stream to become infected with typhoid bacilli and this stream infect a spring or well from which drinking water is obtained, though it be remote from the original source of infection, is the county or State liable for damages? Or could the Government, through neglect, allow a military camp to become infected in consequence of imperfect drainage, thus infecting the drinking water, or through lack of proper screening, the food of the soldier to become infected by flies, which have conveyed the bacilli from the dejecta of typhoid patients, be held accountable for sickness or death? The Government and the several States have declared typhoid fever a preventable disease, and as the guardians of the Public Health are they responsible in the same degree as they are for accidents to health as for those to life, limb or property through negligence in public buildings or highways?

It would be interesting, as well as possibly surprising, to have this question determined by our courts.

Our columns are open to a discussion of this subject.

MORTALITY STATISTICS OF THE UNITED STATES

The mortality statistics of the United States for 1912 are contained in the report on that subject just published by the Bureau of the Census, Department of Commerce. It is the thirteenth annual report of the series, which began in 1900.

DEATH RATE FOR THE REGISTRATION AREA OF THE
UNITED STATES FOR 1912

The total number of deaths registered was 838,251, corresponding to a death rate of 13.9 per 1,000 population. The rate is the lowest on record, that for 1911, previously the most favorable year, being 14.2.

By sex there were 459,112 deaths of males and 379,139 deaths of females. The proportion of deaths of infants under 1 year to total deaths 17.6 per cent. was slightly lower than that for 1911, 17.8 per cent. Full details are given on the deaths during the first days, weeks, and months of life of the 147,455 babies who died before they reached their first birthday, but satisfactory figures for infantile mortality cannot be given, as the report states, because of the very general neglect of effective birth registration. The bureau is making an earnest effort to remedy this condition and will publish statistics showing what states and cities enforce their laws for this purpose in its next report.

Attention is called to the desirability of a full statement of the facts in regard to deaths of nonresidents and deaths in hospitals and institutions as required on the standard certificate of death, also relative to more precise statements of causes of death and the duration of illness. A booklet has recently been distributed to all physicians in the United States in order to secure their aid for this purpose.

DEATH RATE FROM PRINCIPAL CAUSES

Diagrams show the variations of the death rate from all causes and important diseases since 1900. Tuberculosis markedly decreased, although it still causes a vast number of unnecessary deaths—90,360, or 149.5 per 100,000, in 1912. This was over 10 per cent., 10.8 of the total mortality. Next came organic diseases of

the heart, with 86,179 deaths (adding endocarditis, they slightly exceeded tuberculosis), acute nephritis and Bright's disease 62,267, pneumonia 51,495, congenital debility and malformations 48,596, cerebral hemorrhage and softening 46,797, cancer 46,531, and diarrhea and enteritis of infants under 2 years of age 42,482. There were 63,385 deaths from external causes, of which 49,775 were due to accident, 9,656 to suicide, and 3,954 to homicide. The suicide rate, 16 per 100,000 population, was slightly lower than that for 1911, 16.2, and is the same as the average for 1906 to 1910.

Typhoid fever, with 9,987 deaths, 16.5 per 1,000, showed a notable decrease from the preceding year, 12,451, and a most gratifying reduction from the average rate for the five-year period, 1901-1905, 32. In other words, it has been cut in half in the last decade, although our rate is still high as compared with some European countries. As the report says, "Nothing is more easy, with adequate support of proper health administration, than to reduce greatly the typhoid mortality of the communities that still show high rates from this cause, and thus to contribute to decrease in the national toll of untimely deaths and costly illness paid to this strictly preventable disease."

EUROPEAN VITAL STATISTICS

The statistics of the populations of Europe for 1911 show that in all the States of Europe, excepting France, there has been an increase in population of from 67 to 188 per thousand. The number of deaths over births in France during this period was nine per 10,000. In the increase of birth over deaths Bulgaria stands first, then Roumania, Russia, Portugal, Servia and Bosnia. Germany takes eleventh place with an increase of 113 per 10,000. Scotland has more births than deaths by 105 per 10,000, England 98, Austria 95, Belgium 85, Switzerland 84, Spain 81, Ireland 67.

ARTERIOSCLEROSIS

There are two essential factors in arteriosclerosis, says Sir William Osler in the *British Medical Journal*, the quality of the

tubing and the way in which it is treated. The marvel is that any set of pipes could be constructed to stand the continuous strain to which for years the human blood vessels are subjected. To use a well worn simile—very different qualities of rubber are used in the make up of our tubing, and longevity is very much a matter of its quality, whether good Para or not. There is, too, that curious and inexplicable element which brings such uncertainty into our calculations. Take two 1910 motor cars turned out from the same shops and by the same workmen and with the same parts. The one may give no trouble, the other may be half the time in the repair shops. Of a dozen blades of a safety razor, all identical in appearance and in fineness of edge, some may be used for weeks, even months; others may have to be cast aside in a few days. So it is with man and his blood vessels. The contract calls for from sixty to eighty years of usage. Some hold out well, and, even after ninety years, are still fairly good, but the personal equation has always to be considered.

WAS CÆSAR AN EPILEPTIC?

Moore declares that the historical reference to Julius Cæsar as an epileptic is erroneous. This idea was based on a passage in Plutarch and one on Suetonius, but more probably what took place was that Cæsar fainted from exhaustion, due to great mental strain. Who had even seen an epileptic with a head like Cæsar's, or known one of such transcendent mental ability? And, applying the same observations, was not the belief in the epilepsy of Cæsar the sole origin of the idea of epilepsy in Napoleon?

SMALLPOX AND VACCINATION

With the intimate relations which New York City has to the rest of the State, it cannot be but disquieting to learn that so far this winter more than 250 cases of smallpox have occurred in the City of Niagara Falls. The spread of this disease in that city is due entirely to the continued neglect of vaccination following a

persistent campaign of misrepresentation by the antivaccinationists. The result is always the same; an unvaccinated community is sooner or later ravaged by smallpox, and thus made to pay the price of its folly.

In this connection we call attention to the fact that according to a recent decision of the Appellate Division of the Supreme Court of this city (New York), the Court ruled that parents must have their children vaccinated before they attend school. If they refuse, they may be fined \$5 for the first offense, or \$50, or fifty days in jail, for the second offense. Enforcement of this law rests with the educational authorities. Bulletin Department of Health, New York City, January 31, 1914.

DEATHS IN RURAL NEW YORK

Next to Maryland, which has a large population of negroes, New York State has the largest death rate in the Union—due to deaths in its rural districts. It is a delusion hard to overcome that the country is more healthful than a large city like Greater New York. But, while the death rate in this city has fallen to 13.7 per 1,000 population, in the rural districts it has steadily climbed to 15.4. This difference is due altogether to the prevalence in the country of preventable diseases like typhoid and tuberculosis. A human life is valued at \$5,000. Last year rural New York lost needlessly at least \$15,000,000 in lives.

RISK OF DEATH ON RAILROADS

A contemporary has estimated that since the average length of a railroad journey in this country is 34 miles, and a passenger may take 2,275,122 such journeys with only one chance of being killed, it would take him, at two trips per day, 3,792 years to run the full gamut of risk. That is to say, if the one fatal accident happened to him in the present year, it would have been necessary for him to start his railroad traveling, at two trips per day, in the year 1879 B. C. It must be borne in mind, however, that he might be killed on his very first trip.

DIGEST OF CURRENT MEDICAL LITERATURE

Chronic Intestinal Stasis.—J. George Adami, *British Medical Journal*, January 24, 1914 (*New York Medical Journal*, February 14, 1914), deals a severe blow to the pet theories of Lane and his followers as to the cause of symptoms associated with chronic intestinal stasis. He first takes exception to the term "autointoxication," because it is not employed to indicate true self poisonings, but to cover a multitude of poisonings distinctly of exogenous source. In no sense can products of the digestion of foodstuffs, whether by normal ferments or the action of bacteria, be regarded as giving rise to "autointoxication"; for their products, if they be toxic, are derived from without, and not from the body tissues. "This blessed word 'autointoxication,' *sensu Bouchard*, has become a shibboleth; and, after the inevitable tendency of frail humanity, it is scarcely ever employed for the self-poisonings proper; we see it used every day, both by those who ought to know better—like Sir Arbuthnot Lane and Doctor Saundby—and yet more often by those who obviously do not know better, as a blanket or omnibus term to cover all the processes which are not autointoxications, processes whether of toxic or infectious nature originating in the alimentary canal. As a consequence, the users are blinded to the fact that they are confusing together many processes which, for the purposes of clear thinking and progress, ought to be carefully kept apart." Lane enumerates no less than seventeen different symptoms or conditions attributable to intestinal stasis; yet, it is admitted that no case shows more than one or two of these, proving that in different patients the etiological factor must differ, although there is stasis in all. The whole process of digestion is the conversion of food substances into a soluble or fluid state; it is certain that with the great absorption of fluid that goes on in the colon there is also absorption of a large amount of foodstuff. Further, the process of drying and concentration, which takes place in the large intestine, is inhibitory to the growth and activity of bacteria and lessens putrefaction. While one-third to one-quarter of the solids of the healthy stool is composed of bacteria, it is a striking fact that nearly all of these are dead. "It is an utter fallacy to picture the contents of the colon, as I fancy most of us are apt to do, as undergoing acute putrefaction." The arrangements

and relationships of the appendix, cecum, and colon in themselves indicate function. In the light of our present knowledge, it is certain that it is not the action of normal digestive fluids on foodstuffs which gives rise to Lane's symptoms, for the tendency of this action is continually to reduce the toxicity of the various substances which they attack. Granting that bacteria may act on the foodstuffs so as to produce toxic bodies, such as indol and beta-iminoazoly-lylethylanin, neither of these bodies is absorbed readily from any portion of the intestine, and it is only when the mucosa is damaged that they can enter into the circulation in amounts sufficient to cause symptoms. The exotoxins of the bacteria themselves have been accused, but most bacteria in the intestines are not possessed of exotoxins, and, secondly, symptoms of absorption of bacterial exotoxins are not those of Lane's list, but rather simulate anaphylaxis. Adami believes that the proper explanation of Lane's symptoms is to be found in the fact that bacteria enter the tissues of the host and give rise to subinfection, varying in its symptoms with the degree of infection, type of organism, and tissue involved. This explanation is capable of demonstration and covers all symptoms which Lane and others have attributed to the absorption of toxins. It is probable that marked intestinal stasis leads to a greater opportunity for bacilli to gain entrance through the somewhat damaged mucosa, but this does not justify the short circuiting of every colon, nor its removal, but rather indicates necessity for careful study of the precise nature of infection in each case, the institution of adequate medical treatment, and, where there is very decided obstruction to passage of the intestinal contents, to operative removal of the cause.

Organ Specificity of the Proteolytic Splitting Ferments.—A. Fuchs, *Münchener Medizinische Wochenschrift*, October 7, 1913, treated rabbits with intraperitoneal injections of organ extract and tested, after the lapse of a certain period, for the presence of specific splitting ferments (*Abwehrfermente*) in their blood. All tests proved an absolute organ specificity of the ferments. In one animal, after the injection of kidney substance, only kidney substance was split up, and after the injection of muscle only muscle was split up and no other tissue. There is no species specificity. The ferments attack the corresponding organ of the most diverse animal species in equal degree.

Serum of Patient as a Salvarsan Vehicle.—Schubert, *Münchener Medizinische Wochenschrift*, December 30, 1913, used serum of

the patient as a solvent for neosalvarsan and an intravenous or intramuscular injection is well borne. The solubility of neosalvarsan in serum is very great. In one c. c. of serum at least 0.15 neosalvarsan can be dissolved.

Intratracheal Insufflation.—J. P. Pratt, Baltimore (*Journal A. M. A.*, January 3d), describes and illustrates a new apparatus for intratracheal insufflation, the advantages of which method are now well established. The description does not lend itself well to the making of a brief abstract, as practically the whole paper would have to be reproduced. The ether container, it may be mentioned, is provided with a pressure equalizer, allowing the ether to drop at any constant rate desired, which has obvious advantages.

Embarin.—M. Salomonski (*Deutsche Medizinische Wochenschrift*, September 4, 1913) remarks that the rising popularity of which mercury is beginning to enjoy when its results are compared with those of salvarsan brings the other mercurial preparations into prominence again. Embarin is a mercurial preparation, soluble in water, and is injected daily for about twenty days. That the results are good are demonstrated by the fact that the Wassermann reaction becomes negative. Secondary action on the kidneys is not to be feared. Some patients react vigorously and with alarming symptoms after the injection, and since toleration is not produced its discontinuance in such cases is to be advised.

Diet and Dietetic Treatment from the Vitamin Viewpoint.—C. Funk, *Muenchener Medizin Wochenschrift*, November 18, 1913, of the Cancer Research Institute, London, writes entertainingly on this subject, for there has been much discussion as to vitaminous foods and their proper administration. There is a loss of vitamin when we remove the peripheral layers of various grains (rice, maize, wheat, rye); also when we overheat our food; from the washing out in cookery, and especially through drying. In improper preparation of food in general, we lose not only the vitamins, but also other nutrient constituents. The author compiles two tables of food: Those containing vitamin are breast milk, raw cow's milk, boiled milk (brief, single exposure), butter cheese, yolk of egg, meat juice and broth, fresh potatoes and green vegetables, vegetable soup, fresh fruit, fruit juices, plain or cooked, lime juice, whole wheat bread, whole rye bread, red rice, lightly boiled meat, fresh beer yeast, yeast extract, and cod liver oil. Foods which contain little or no vitamin are sterilized milk and preserved milk, repeat-

edly boiled cow's milk, white of egg, dried fruit and vegetables, white bread, flour, rice, sago, dried and polished maize, Indian meal prepared from same, etc., etc. In regard to pellagra the author concludes that maize or Indian meal does not suffice as chief nourishment and should be consumed with vitaminiferous potatoes, fruit, vegetables, meat, etc. Whole Indian corn alone may be dependable as food.

Hepatic Abscesses Opening Upward Through the Lung.—James Cantlie, *Journal of Tropical Medicine and Hygiene*, November 15, 1913, points out that the disappearance from clinical practice of abscesses, far back in the liver, bursting upward through the lung cannot be expected with the diagnostic means now available. Such cases may even become more numerous, owing to excessively prolonged attempts to destroy the amebas by medical treatment. Ipecacuanha or emetine should, indeed, be given in hepatitis associated with dysentery in the hope of preventing pus formation, and it is possible that the drug may, by destroying the organisms, actually cause a threatening intrahepatic abscess to abort; but, that it can resolve an established abscess, is to be regarded as improbable, and that pus beyond the liver—suprahepatic abscess—can be affected by the drug is inconceivable. The point of transition from safety to danger during the ipecacuanha treatment is obscure, as it is impossible to determine.

Nature of Old Age and of Cancer.—Hastings Gilford, *British Medical Journal*, December 27, 1913, regards the development of the human body as a whole, or of any portion of the body, as describing a curve which ascends from the time of the union of the two genetic elements to a maximum at which there is the greatest development of specialization in function and the least in the general characters, such as those of multiplication. The curve then begins to descend with a gradual and progressive loss of differentiation in form and function and an increasing tendency of certain cells to multiply. Decay of certain cells during advancing age leads to their becoming bodies foreign to their host, and this, in turn, calls forth the phagocytes, which, walling off the foreign body, become themselves transformed into fibrotic tissue. The three characters of old age are, decay, fibrosis, and proliferation of non-specialized cells. As the more specialized cells retrogress with a loss of specialization they take on an increased tendency to multiplication. "Reversion is the keynote of the proliferation of old

age wherever it occurs." Granting the foregoing statements regarding the anatomy and biology of old age as being true, Gilford believes that we can explain cancer in terms of senility. He says: "Thus, the typical cancer is made up of a collection of cells native to the part, but of more embryonic type, and these cells are surrounded by collections of round indifferent cells derived from fibrous tissue and from other low class structures, such as endothelium and leucocytes. The fibrous tissue, moreover, is often increased, as it is in the senile organ. These changes may be interpreted as follows. Certain somatic cells become aged while the tissues around them are still in a state of comparative youth. They express their senility by returning to a more embryonic form, and as they do so they increase in number, the faculty of multiplication being one of the manifestations of regression. But as this qualitative change takes place they become alien to their surroundings, and, as foreigners or rebels, stimulate into action the mechanism of phagocytosis. Not only is there an incursion of lymphocytes into the parts, but the connective tissue and endothelial cells in their vicinity revert to their embryonic state and begin the work of phagocytosis. But, as a fact, they have to deal with neither the effete products of molecular degeneration nor with an inert foreign body, for though virtually strangers, cancer cells are by no means inactive. Hence, the attack is abortive, except in so far as the phagocytes, by forming new fibrous tissue, tend mechanically to limit the proliferation of the cancer cells. For, in the meantime, the fixed connective tissue cells are themselves rapidly proliferating, with the result that when they cease their activity and return to their resting stage groups of cancer cells are cut off by intersecting bundles of fibrous tissue, while the whole mass is surrounded by an incomplete capsule of the same structure. This tends to limit the encroachment of the growing cancer, and were it not for the lymph spaces or capillaries, which are the gaps through which the growing cells escape, no doubt the limitation and strangulation of cancers would occur far more often than they do. It will be noticed that the more nearly the cells of a cancer approach the embryonic state the more rapid will be the growth, the less opportunity for fibrosis, the more malignant the cancer." Gilford maintains for this theory that it is satisfactory, based as it is upon facts reasonably interpreted, and that it covers all of the ground.

Radium and Cancer.—Alfred Pearce Gould, *British Medical Journal*, January 3, 1914, prefaces his remarks by saying: ". . . when we have to consider the action of unknown and variable

radium upon unknown and very variable cancer, it is incumbent upon us to speak with great reserve, and to be constantly checking our observations with what is known of the natural history of the disease; . . . exact therapeutic knowledge can be obtained only when we have exact knowledge of the nature of a disease, and of the physiological action of the medicament." Radium has a selective action in the destruction of the cells of malignant, new growths without seriously affecting the normal cells, and it is this selective action which alone is the basis for its use in cancer. It is possible to secure the gradual destruction and removal of cancerous tissue by radium without sloughing or injury to the healthy tissues. The effects obtained are much more satisfactory when the radium is placed within a cancer than when it is applied from without in the form of a plate. It is true, also, that the radiations of radium are as effective as the substance itself. Certain dangers attend the employment of radium, among which may be mentioned, sloughing, thrombosis, hemorrhage, serious constitutional reaction, and danger to the operator, who may be seriously injured by too frequent exposure. Treatment of cancer by radium meets with very decided limitations. The new growth may not be accessible to the direct action of the emanations. The nature of the part affected may prevent the use of radium, for example, the intestine. The drug is not applicable, with any hope of success, in the presence of metastases. The extent of the influence of radium on cancer is very variable, often quite limited, and is not readily subject to control. The variability of action may even extend to marked differences in the reactions from two applications of the same dose. Certain cases of malignant disease seem to have been made materially worse as a result of the exposure to radium. Following the use of the drug there may be a persistent and painful local reaction. With the sole exception of sarcoma of the hip joint, Gould thinks that radium ought never to be considered as an alternative to operation. It has been suggested to apply radium as a prophylactic against recurrence after operation, but there seems to be no logical reason for this. The use of radium water internally to influence cancer is charlatanism.

Treatment of Blood Diseases.—Hirschfeld, *Medizinische Klinik*, January 11, 1914, says that it is generally possible to find some preparation of iron that the patient can take, but arsenic is useful when the number of blood corpuscles is much below normal and there is little response to iron. Milk contains extremely little iron, so it need not be forced on the anemic as is often done. Small

amounts of alcohol have a stimulating action on some anemic patients while others are unable to stand it. There is no deficiency in iron in pernicious anemia, but with repeated courses of arsenic it is possible sometimes to keep patients in good condition for years, even sometimes retaining their earning capacity. The patient should be kept under constant supervision so that the arsenic can be promptly resumed at the first signs of a relapse; iron may then prove useful also when the arsenic fails. In pernicious anemia, hydrochloric acid and pepsin must be given persistently. Transfusion of blood has sometimes done service but never realized a cure.

The reports to date on benzol treatment of leukemia are encouraging on the whole, but extreme caution is necessary, as in some instances the leukocytes dropped below the normal figures and death soon followed. The combination of radiotherapy and benzol seems most promising. It does no good to remove enlarged leukemic lymph-nodes as the trouble is systemic. If they are compressing organs or nerves they can be reduced in size by exposure to the Roentgen rays or radium. The leukemic lymph-node seems to heal faultlessly after an operation. Splenectomy in myeloid leukemia usually proves speedily fatal; only one case is known in which the patient survived, and the leukemia did not seem to have been influenced in the least. Some clinicians have reported excellent results from splenectomy in pernicious anemia, but others have had only some improvement; the blood picture never returned quite to normal.

Rectal and Duodenal Alimentation.—Myers, *Post Graduate*, November, 1913, states that although the introduction of duodenal alimentation has greatly reduced the necessity for rectal feeding, it is, nevertheless, evident that a satisfactory nutritive enema is needed for the cases in which this must still be employed. Biochemical investigations of the past year have given us facts which indicate the lines along which this must be accomplished. The substances absorbable from the large intestine are the simple end products of digestion. For the carbohydrate this is glucose, while for the protein it is the amino acids. Since the activity of the enzymes present in the large intestine is very weak, and enemas are not ordinarily carried back into the small intestine, the nutrients must be introduced in absorbable form. We now have direct proof that sodium chlorid, glucose and amino acids are actually absorbed by the large intestine. In other words, we possess methods of introducing the mineral, carbohydrate and protein nutriments per rectum. No method of introducing fats in readily absorbable form

has thus far been developed, although the necessity for fat is not nearly so great as for protein and carbohydrate. It would seem probable, however, that where thoroughly pancreatized milk was employed as the basis of a nutrient enema, that a small amount of the fat ought to be absorbed. Since absorption takes place much more slowly in the large than in the small intestine, it is obvious that the amount of food absorbed in this way can never be as large as where the food can be taken by mouth. Chittenden has shown, however, that the normal individual can be satisfactorily maintained on less than half of the usual caloric and nitrogen intake, and a patient in bed certainly requires a much smaller food intake than the normal individual. There is, therefore, good reason to believe that fairly adequate nutrition can ultimately be attained with nutrient enemas.

Glucose, the important carbohydrate component of our present nutrient enema, is readily available, but this cannot be said to be the case with the amino acids. The use of the mixed amino acids obtained by the prolonged action of the enzymes, trypsin, and, where possible, erepsin, upon such proteins as those of milk and of beef should be a logical procedure. We now possess relatively simple methods of estimating amino nitrogen, viz., the methods of Van Slyke and of Serensen. In this way it should be easy to determine the proportion of the amino nitrogen in our digestion mixtures, and thus the probable degree of absorption. It is upon principles such as the above that the satisfactory absorption of nitrogen from nutrient enemas is dependent. Experiments are in progress in this laboratory which, we hope, will further elucidate this problem.

Amebic Dysentery.—Frank C. Yeomans, *New York Medical Journal*, February 14, 1914, states that emetine is used in the form of the soluble salt, emetine hydrochloride, which is supplied by pharmaceutical houses in tablets of various strengths, also in the very convenient, but more expensive, hermetically sealed ampules, containing the salt dissolved in sterile solution.

The average dose is one-half grain of emetine hydrochloride, dissolved in ten to fifteen minims of normal saline solution and injected subcutaneously in the outer of back part of the arm over the deltoid. This dose is administered daily for three to seven days, depending upon the return of the stools to the normal in number and appearance, the absence of amebas, and the healing of the ulcers as shown by the proctoscope. Naturally, there can be no fixed rule as to dose, as the cases are so variable. It is certain, however, that when the signs and symptoms indicate a clinical cure

the administration of emetine should be discontinued, for an excess will, in its excretion through the mucosa, cause bowel irritation, as I experienced in two cases, just as will emetine when administered in solution per rectum. The only reaction to hypodermic doses of one-third to one grain is local induration, which is tender for about one week. Rogers and others have reported good results from giving keratin coated pills of emetine by mouth. They caused severe emesis in two of my patients. I have had no experience with the intravenous injection of emetine and believe that it will be seldom, if ever, indicated in the class of cases seen in this latitude. During the treatment the patient has a bland diet and rests as much as possible, though confinement to bed seems unnecessary.

As a prophylactic measure I believe that the stools should be disinfected as in typhoid fever, for the disease is contracted by ingestion of the ameba, and I know of one instance at least in New York where several persons in the same family were infected from one member.

In emetine we possess a specific for amebic dysentery in the same sense that quinine is specific for malaria or salvarsan for syphilis; when it is used at the onset of the disease, cure should be prompt and permanent in all cases. Naturally, when the amebas have invaded the tissues deeply and are widely disseminated, cure may be permanent or clinical only. After weeks, months, or years, latent encysted amebas may reappear in an active vegetative form, accompanied by all the symptoms of an acute attack, just as the Wassermann reaction in syphilis may become positive after having been negative for a long time.

Hence, amebic patients should be kept under prolonged observation and at the first signs of recurrence a course of emetine given. Because of the extensive destruction of the mucosa and the secondary infection of the ulcers with intestinal flora, mucus, pus, and blood in diminishing quantities may continue to be evacuated for some time after all amebas have disappeared from the stools. Irrigations and topical applications through the proctoscope will materially hasten the process of tissue repair.

While the story of emetine is still in the making, from the results already obtained, one can safely state that, with proper precautions and certain reservations, another specific has been added to our armamentarium. It confers a boon on the West, as well as the East, and practically limits a widespread disease, that in many of its phases and complications has been of necessity surgical, to safe and practical medical treatment.

Urinary Antiseptics.—Jordan (*British Medical Journal*, September 13, 1913) reports the results of his investigation undertaken under the auspices of the British Medical Association. The work was experimental, the effect of chemical reaction and of various drugs upon urinary putrefaction and upon the growth of selected microorganism in the urine being observed in vitro. The following practical conclusions are drawn:

1. The acidity of the urine is readily increased to an extent of more than double the normal by acid sodium phosphate, average dosage gr. 15 t. i. d., and to a less extent by benzoates. With large doses of citrates it is easily rendered alkaline, e. g., sodium citrate gr. 30 t. i. d.

2. Putrefaction of the urine and the growth of the staphylococcus is aided by alkalinity and delayed by acidity in proportion to the amount thereof. The reverse is true with *B. coli*, but only to a small extent, its growth in both acid and alkaline urines being quite luxuriant.

3. Hexamethylenetetramine (urotropin) is not itself antiseptic, but acts by producing formaldehyde in the urine. This takes place only in acid urine, the yield of formaldehyde, and, therefore, the degree of antiseptic power, being proportionate to acidity. This drug is by far the most efficient of all the urinary antiseptics.

4. Helmitol, citramine, hetraline and cystopurin, though they all yield formaldehyde in alkaline media in the test tube, behave precisely like urotropine in the urine, having no antiseptic power in alkaline urine.

5. Sandalwood oil, though not an efficient general urinary antiseptic, seems to have a specific action on the staphylococcus, which possibly accounts for its reputed favorable action in gonorrhea.

6. Benzoic and salicylic acids are fairly efficient urinary antiseptics, but of little use in alkaline urine.

7. Boric acid acts efficiently; its action being unaffected by alkalinity. It is the most efficient drug in alkaline urine we possess.

8. *Uva ursi* is quite a good antiseptic. Its action is certainly not due chiefly to the arbutin it contains.

Air as a Vehicle of Infection.—C. V. Chapin, *Journal of the American Medical Association*, February 7, 1914, remarks that, until a very recent period, air has been considered the chief vehicle of infection. Now a great change has taken place in the attitude of scientific men toward the theory of aerial infection. Many diseases formerly considered air borne have been shown to be invariably transmitted in other ways, and other infections by air

have been shown much less important than was formerly believed. In setting forth present day facts and ideas the author follows in a general way the course of their discovery and development. One of the most interesting changes in our conception of the air as a bearer of infection concerns aseptic surgery. The fact that numerous living pus forming bacteria floating in the air fail to infect when falling on the fertile soil of freshly cut tissues or exposed peritoneum should make us scrutinize closely the belief that pathogenic bacteria, more sparsely distributed still, can run the gauntlet of the respiratory passages and penetrate mucous surfaces, or reach and infect pulmonary alveoli, or pass thence into the blood stream. It is not the mere presence of germs, but their quantity, which counts. Summarizing, there is little evidence that, among diseases which commonly occupy our attention in this part of the world, aerial transmission is a factor of importance; in most it is, under ordinary conditions of home and hospital, a negligible factor. In tuberculosis alone is there evidence that airborne infection is a factor of importance, but the last word has not been said as to its etiology. The sewer gas bogey is laid, the notion that dust is a dangerous vehicle of every day infection is unsupported, and mouth spray is usually effective only at short distances.

Magnesium Sulphate and Glycerin in the Treatment of Infections.—The use of a mixture of saturated solution of magnesium sulphate and glycerin in equal proportions for the cure of infections is not mentioned in any book, so far as I know. (E. M. Freese, *New York Medical Journal*, February 14, 1914.) I came to use it the first time because I knew that saturated magnesium sulphate was used in sprains and inflammations to allay pain and abate swelling (Tucker, *Journal of Experimental Medicine*, May 25, 1907), and I knew that glycerin had been used for years in the form of tampons in pelvic troubles. I reasoned that a combination of the two drugs might reduce swelling, stimulate lymphatic circulation and perhaps cause an increase of phagocytosis.

I recommended the treatment to Dr. J. R. Sprague, of Athens, Ohio. I quote a paragraph from his letter to me, dated December 7, 1913: "I tried your damn prescription for infections, and it knocked me out of two good fees. One case was an infected thumb, and the other an infected finger, both with adenitis, and red streaks up the arm. They got well promptly, and I got only one visit fee out of each case. Now, Jim, if you give me any more prescriptions which cure so quickly, I will sue you for damages. It is uncalled for." Such is Doctor Sprague's verdict.

I submit this to my fellow practitioners, in hope that some may try it, and, if it is to them what it has been to me, they can cease to worry over infections.

In one year, as interne at St. Francis Hospital, and twenty-eight months as house surgeon at Grant Hospital, Columbus, Ohio, I have treated a large number of infections, and I know that of all things, from boric acid to Bier's hyperemic treatment, glycerin and salts has served me best.

Gout.—F. W. Rolph, *Canadian Journal of Medicine and Surgery*, November, 1913, declares of the older remedies, salicylates, urotropin, iodine, lithium, piperazin, and colchicum, the last named shows the best results, and is preferably given in the form of Houde's granules. The so-called uric acid solvents, however efficient in the test tube, seem to be without action in the body. The drug which has superseded the others in atophan; introduced a few years ago by Nikolaier and Dohrn, it has met with a most favorable reception, some going so far as to state that it is as specific in gout as the salicylates in rheumatic fever. It is usually administered in the form of the seven and one-half grain tablets, three to five tablets being given each day for three or four days in the acute cases, and in the chronic cases four tablets a day for two days, every two weeks. A tasteless preparation is also manufactured, and is known as novatophan.

The radium treatment of gout has not fulfilled the hopes of its earlier advocates, and its employment, either by mouth, by inhalation, or by injection, is being gradually discontinued; however, a sojourn at one of the radioactive watering places is still a favorite prescription of European physicians.

Puncture of the Brain.—Röper, *Centralblatt für die Grenzgebiete der Med. und Chir.*, Jena, January 15, 1914, reviews the history, technic and results of puncture as set forth in sixty-one articles in German literature. All agree that it has proved an extremely useful aid in the diagnosis, but the general opinion seems to be also that it should not be attempted outside of well equipped hospitals. This is particularly necessary as the puncture may indicate the necessity for trephining at once. On account of the fatal prognosis of a brain tumor, the slight danger from the exploratory puncture may well be overlooked. The puncture alone may relieve to such an extent that trephining may not be necessary. Röper concludes his review with the remark that his experience with necropsies impresses on him more and more that puncture of the brain is not

applied often enough. The information to be derived from it is naturally of greatest interest for neurologists and internists, and he hopes that they will learn to appreciate its importance better.

Postoperative Morphine Poisoning.—Hermann Hinterstoisser, who has used regularly, prior to general anesthesia, an injection containing morphine, reports the case of a woman aged forty years, who was given the usual dose of scopolamine and narcophin an hour before operation for appendicitis, and anesthetized with ether and chloroform. She slept quietly till the middle of the afternoon, and was given a hypodermic of morphine five hours later. Two hours later symptoms of severe intoxication appeared, calling for an immediate injection of atropine, digalen and camphor oil. Venesection also was performed. She lay in a stupor for three days with incontinence of urine and feces, and gradually returned to consciousness on the fourth day. He is inclined to ascribe this nearly fatal result not to morphine alone, but to the combined use of the several narcotics. He strongly recommends in morphine poisoning venesection with subsequent intravenous infusion of Ringer's fluid, or of isotonic salt solution.

Chimney Sweep's Cancer.—D. A. Crow's patient (*British Medical Journal*, February 21, 1914), a man, fifty-seven years old, had a very slowly progressing epithelioma on the scrotum for five years before removal. He had an epitheliomatous wart removed from his hand several years before, and has had no recurrence. His skin presented areas of thinning, hyperemia, and scaly patches, as well as numerous warty thickenings. Crow suggests that in these cases a possible explanation for cancer may be found in the diminished nutrition of the skin and impaired oxidation. He recalls that cancer does not occur primarily in organs or tissues with abundant blood supply and efficient oxidation; that it is almost always found under circumstances which indicate an impairment of the oxygen supply to the cells. The family history of this patient is interesting. The father was a sweep and had cancer of the scrotum, two brothers who were sweeps had cancer of the cheek, a sister also had cancer of the cheek, two of the father's sisters had cancer, and the son of one of the sisters died from cancer of the stomach. In this record there is strong evidence of a family tendency to the disease.

Surgical Treatment of Tuberculous Pleural Exudates.—L. Spengler and F. Sauerbruch, *Münchener Medizinische Wochenschrift*, December 23, 1913, state, that, in tuberculous pleural

exudates with large areas in the lungs, partial removal of exudate with corresponding refilling with nitrogen is advisable. Infected pus exudates indicate, just as nontuberculous empyemas do, opening of the chest at the earliest possible period and removal of pus and drainage. Pus exudates sometimes appear in the course of pneumococcus treatment, and must be treated conservatively by puncture and replacement with nitrogen. When communication between pleural cavity and lung is present, a more active procedure is indicated against the infected exudate (resection of the ribs). Breaking into the cavern is particularly dangerous in an artificial pneumothorax. In a few severe cases, improvement and later healing took place by extensive extrapleural thoracoplasty, at first in the lower and later in the upper part of the chest.

Vaccines from the Standpoint of the Physician.—Thomas J. Horder, *Lancet*, January 31, 1914, believes that the growing popularity of vaccine therapy is not an indication of its utility, but, rather, is due to desire on the part of the doctor not to be left behind, and to demand for vaccine treatment on the part of patients. He argues strongly against the use of any but autogenous vaccines, and especially inveighs against mixed vaccines, the use of which, he says, is quite as bad as failure to make a correct bacteriological diagnosis. This latter he considers the crucial point in the use of vaccines. Diagnosis cannot be made without the greatest care and the cooperation of a competent bacteriologist. It must be borne in mind that all other factors available for treatment of the patient must be employed along with the vaccines. Of these, perhaps the most important are securing and maintenance of free drainage, and the raising of the patient's general health.

Insomnia.—Lindsay, in a report on Insomnia, *New York Post Graduate*, October, 1913, states that "in dealing with sleepless patients the physician should make a judicious use of suggestion. "I am not in favor of the recognition of hypnotism as a regular element in medical practice, being convinced that in the long run it lowers the patient's will power and injures his personality, but 'suggestion' has a wide range and includes all the factors whereby the physician can impress his personality upon that of the patient. Every physician does this in greater or less degree, and the best physician is the one who does it best and most wisely."

Gold Reaction in Spinal Fluid.—H. Eicke, *Münchener Medizinische Wochenschrift*, December 9, 1913, gives a detailed descrip-

tion of C. Langesche's gold reaction—spinal fluid changed by inflammatory conditions precipitates colloidal gold, which is easily discernible by change in color of the original purple red of the gold solution. Precipitation of gold salts takes place in a manner characteristic of the inflammatory process; the maximum does not correspond to the strongest concentration of gold solution, but to a certain point of the dilution series. The maximum for cerebral lues is found in dilution of one to seventy to one to eighty, in tuberculous and purulent meningitis in a dilution of 1 to 320. The gold reaction is an important contribution to spinal fluid reactions.

Fever as the Only Symptom of Latent Syphilis.—Hugo Krauss, *Wiener Klinische Wochenschrift*, December 4, 1913, reports several cases of chronic fever of obscure origin in patients who gave positive Wassermanns, but presented none of the ordinary symptoms of syphilis. Careful examination revealed a gumma in one, and a typical history of the disease was finally elicited from all.

Opening of Lacrymal Sac through the Nose.—Otto Mayer, *Wiener Klinische Wochenschrift*, December 11, 1913, reports several cases in which he has successfully performed West's operation, and says that, although the operation is not easy, it presents no insuperable obstacles to the experienced rhinologist. It may be performed under local anesthesia on ambulatory patients, and no treatment is needed after the removal of the tampon on the second day. It does not seem to be associated with danger, and the result is immediate.

Secondary Tumors of the Pituitary and Diabetes Insipidus.—M. Simmonds, *Münchener Medizinische Wochenschrift*, January 27, 1914, reports three cases of secondary metastases into the pituitary body with preceding intractable polyuria. He cites, in addition, two other cases, in one of which, despite extensive destruction of the neurohypophysis, there was no polyuria. He considers that in these cases polyuria is to be considered as a malfunction of the hypophysis, and suggests that, in mamma carcinomas, it is advisable to watch the excretion of urine.

THERAPEUTIC PROGRESS

Action of Uzara and Opium.—O. Hirz, *Münchener Medizinische Wochenschrift*, October 7, 1913, says the basic principle of uzaron action is an inhibition of motor acts in the organs having unstriated muscle tissue (intestine, stomach, bladder, and uterus). It is brought about by a stimulation of the inhibitory sympathetic fibers. The action of uzaron is, on the whole, more lasting than that of the easily decomposed adrenalin and the easily soluble salts of the opium alkaloids. The point of attack for the opium lies in its action on the autonomic nerve endings and in the musculature itself. The action is a paralytic one. The pharmacodynamic advantage of one physiological function (a sympathetic inhibitory action) of uzaron is thus seen. To this must be added the tonic action of the uzaron on the heart and vessels, particularly in the splanchnic area, in contradistinction to the disturbing narcotic properties of opium and its derivatives.

Active Portion of Beck's Bismuth Paste.—F. Rost, *Münchener Medizinische Wochenschrift*, October 7, 1913, says that the active, namely, the stimulative connective tissue substance, in Beck's paste is not the bismuth but the vaseline. Therefore the not altogether nonpoisonous bismuth may be omitted without compromising the efficacy of the paste.

Diagnosis of Arteriosclerosis.—L. F. Bishop, in *Archives of Diagnosis* for October, 1913, is willing to diagnosticate arteriosclerosis whenever a person is found suffering, in the absence of any detectable local disease, from general deterioration of health, increasing cardiac discomfort on exertion, slight albuminuria, irregularities of blood pressure, and the persistent presence of indican in the urine. The diagnosis is confirmed by a history of abuse of protein foods, an attack of one of the predisposing diseases, or great nervous strain.

Absorption from the Intestines.—N. A. Dobrovolskaya, *Roussky Vrach*, September 21, 1913, has studied the question of absorption since 1910 and presents reports of extensive experiments, which, while not showing the actual point at which absorption takes place, indicate that during digestion there is an increase of amidonitrogen in the blood, the result of absorption of amidoacids from the intestines.

Differential Diagnosis of Hysteria.—N. A. Urman, *Roussky Vrach*, observed that in cases of hysteria the patient experiences an extremely unpleasant subjective sensation when the patellar reflex is elicited. The effort to suppress this feeling causes hyperemia of the face, slight tremor of the body and a resentment to the point of tears.

Alum in Herpes.—George O. Williams, of New York, has found a saturated watery solution of alum practically a specific in herpes, applying it even to the conjunctiva or the cornea. The results have been most satisfactory. This is especially noteworthy in view of the fact that the applications ordinarily employed for herpes are of very little use. This very annoying and disfiguring malady usually runs its course unaffected by treatment. (*Amer. Jour. of Clin. Med.*)

Elarson.—Tuszewski, *Münchener Medizinische Wochenschrift*, December 30, 1913, says that elarson (strontium chlorarsenobenolate) is a palatable and digestible arsenic preparation suitable for convenient doses. It has been successfully used as a tonic in combination with iron, in secondary anemias and chlorosis. Dose for children daily is one to three tablets of one-half mg. each, for women up to sixteen tablets per diem, and for men to twenty tablets. Even after the largest doses no irritating effects upon stomach or intestines were observed.

Camphor, Particularly in Pneumonia.—M. Hötzel, *Münchener Medizinische Wochenschrift*, December 16, 1913, by systematic injections of ten c.c. of oleum camphoratum forte twice daily, found that pneumonia runs a considerably shortened course. With this treatment the crisis occurs on the third or fourth day and is very rapid. The action of the drug seems to be specific.

Lipoidiodin.—Steiner, *Deutsche Medizinische Wochenschrift*, December 18, 1913, says Lipoidiodin is a lipotrop and neurotrop distributed equably throughout the whole organism and is more effectual in smaller and less frequent doses than any other iodine preparation.

Peristaltin.—F. Ehrlich, *Deutsche Medizinische Wochenschrift*, December 25, 1913, says that peristaltin, the glucosid of cascara sagrada, has proved a good and exceptionally mild cathartic given by mouth or subcutaneously. It is also effectual in overcoming postoperative intestinal paresis.

Fibrolysin in Chronic Pneumonia.—According to Brenner, *Muench. Med. Woch.*, 1913, No. 28, fibrolysin injections are strongly indicated in cases of pneumonia where resolution is delayed and where the evil effects of a persistent consolidation become manifest. In one case published, asymmetry of the thorax had already set in and the dullness and bronchial breathing persisted despite all treatment. One day after the first injection of fibrolysin the dullness of the affected area began to clear up and the cough and expectoration reappeared. After the second injection, there was rapid resolution of the affected area.

Atropine in Hiccough.—A. J. Caffrey (*J. A. M. A.*) reports a case of persistent hiccough in which numerous methods proved of no avail. The condition had kept up for eight days, when another physician suggested the use of atropine. After one injection of 1/50 grain of atropine the hiccoughs stopped and never recurred.

MISCELLANY

THE LITTLE STRANGER

Well, he is here at last; the train somewhat delayed. Although the journey was until the last most comfortable, somehow the transfer at the end was rather exciting and confusing. The Mother Stork, therefore, had some trouble in locating him. The transfer was an irregular one and somewhat uncertain, so much so in fact that he had to call for assistance. The schedule having been ignored, the confusion of disembarking was accompanied by some embarrassment and numerous bruises: a black eye, scalp wound, and an embasure on the neck. But he did not protest or fuss about it, indeed, he was not consulted as to how he left the comfortable quarters to be mauled and manhandled. And this, I think, was what so disturbed Mother Stork, for she was worried and lingered around for some fifteen minutes, standing first on one foot, then on the other, waiting to see if the little chap should take the count or come back. Truly, she was more agitated than I have ever known her to be. The usual stolid expression was changed to one of deep anxiety; the feathers much ruffled, with every sign of agitation apparent. She did not seem to approve of the transfer from the comfortable stateroom to the storm tossed ferryboat. I was not present when the transfer was made, but was told that notwithstanding his mauling this little stranger did not whimper, just one feeble outburst of protest at the jostling. He is a brave laddie all right. I found him with his fists doubled up and a serious look upon his diminutive face, but soothing, reassuring words from beneath the bed cover, and the sound of an earnest voice behind, I think comforted him, for he went for a visit to his little friends, with whom he had been for nine months. And thus I left him for a while. While I did not start him on his career, I, nevertheless, felt responsible for him that did, so, of course, I was greatly interested in him.

While it is true at my second visit I told him of the danger of overconfidence in transfer agents, he did not reply, which may mean that he thought it all up to me, or to that other chap. And, somehow, I think I see a close resemblance to this other chap, although it is now some thirty years since he arrived. Well, if this little one brings as much sunshine into the other's life as the latter did into mine, he will be worth the while.

The tempest prevailing at his advent suggests that he was born under Mars. I trust, however, that, if such was the case, Venus was close by. With such a God Father and Mother, I will be content and, in time, forgive the rude transfer agent.

PHYSICS OF THE EMOTIONS

The exaltation of victory makes wounded soldiers oblivious of pain, and the depression of defeat increases mortality. If a cat is frightened for ten or fifteen minutes by a barking dog, a sample of its blood will make strips of certain muscles relax when they are immersed in it, though such a portion of blood had no effect on them before the emotional disturbance. Frightened rabbits show almost complete prostration, and their brain cells, in contrast with those of normal animals, take a deeper stain from certain chemicals, and their size and shape are strikingly altered. Finally, if an individual is placed in circuit with a delicate galvanometer and made to laugh, to feel sad, or is suddenly surprised, there will be movements in the instrument indicating the passage of small electric currents. Such interesting scientific facts as these, and many others, make it clearly evident that emotions are something more than mere states of mind.—*Harper's Magazine*.

SPECIAL PAVILION FOR HOSPITAL CARE OF
VENEREAL DISEASES

An annex to the Long Island College Hospital has been erected in the rear of the main hospital buildings, in Henry St., Brooklyn, and is now open for patients. This annex, which is devoted solely to venereal diseases, is a welcome addition to the hospital facilities of this city, for, with the exception of possibly one or two hospitals, patients suffering with syphilis, or gonorrhea and its complications, and needing hospital treatment, have heretofore been forced to enter public city hospitals. This new pavilion is two stories in height and has accommodations for sixty male patients. It is so arranged that the two classes of patients are entirely separated, the upper floor being for gonorrheal patients and the lower for syphilitic patients, with complete equipment of dressing rooms, toilet and bathrooms on each floor, and separate dining rooms. For patients, who are willing to pay a little more for greater privacy, two small wards, one on each floor, with four beds each, have been provided. The patients are to receive the most modern treatment, and the nursing is under the care of experienced male nurses. Members of the medical profession, and others interested in the work of this department, are invited to visit the annex, or to communicate with any member of the staff, or with the superintendent of the hospital, for further information regarding the work or for the reception of patients.

UNIVERSAL EPIDEMIC

Roger W. Babson says that in looking up appendicitis cases he learned that in 17 per cent. of the operations for that disease the postmortem examinations showed that the appendix was in perfect condition.

"The whole subject," he adds, "reminds me of a true story I heard in London recently. In the hospitals there, the ailment of

the patient, when he is admitted, is denoted by certain letters, such as 'T. B.' for tuberculosis. An American doctor was examining these history slips when his curiosity was aroused by the number on which the letters 'G. O. K.' appeared. He said to the physician who was showing him around:

"There seems to be a severe epidemic of this G. O. K. in London. What is it, anyhow?"

"Oh, that means 'God only knows,'" replied the English physician."—*Open Door*.

A French physician says that the ideal way to cure warts is to pass a current of electricity through a piece of absorbent cotton saturated with a 2 per cent. solution of magnesium sulphate and placed on the wart. The electric current ionizes the magnesium sulphate, and after sixteen treatments the wart is removed without leaving any scar.

A selenium film of extreme thinness has been found to increase a thousandfold in electrical conductivity on exposure to light. This is the basis of some modern burglar alarms.

WHAT FOOLS THESE MORTALS BE!

The doctor says:

Drink water and get typhoid.
 Drink milk and get tuberculosis.
 Drink whiskey and get the jim-jams.
 Drink wine and get the gout.
 Drink coffee and get nervous prostration

Eat soup and get Bright's disease.
 Eat meat and get apoplexy.
 Eat oysters and get toxemia.
 Eat vegetables and weaken the system.
 Eat dessert and take to paresis.

Smoke cigarettes and die early.
 Smoke cigars and get catarrh.

To be entirely healthy, one must eat nothing, drink nothing, smoke nothing, and don't breathe until the air has been thoroughly sterilized.

Our advice is—DON'T WORRY.

A man needs to see the stars every night that the sky is clear. Turning down his own small lamp, he should step out into the night to see the pole star where he burns or "the Pleiads rising through the mellow shade."

BOOK REVIEWS

The Chemic Problem in Nutrition (Magnesium Infiltration). A sketch of the Causative Factors in Disorders of Nutrition as Related to Diseases of the Nervous System. By John Aulde, M.D. Cloth. 8vo. 410 pages. Illustrated with four plates. John Aulde, M.D., Philadelphia, 1912. Price \$3.00.

In approaching the subject of magnesium infiltration, the author declares that it is a condition essentially a disorder of the nervous system; that its development depends upon various conditions, and that it may be the actual disease, as a neuritis, neuralgia, angina pectoris, locomotor ataxia, arteriosclerosis, or whenever the nerve supply is surcharged with magnesium—effecting insulation by chemic transformation. Magnesium infiltration is, continues the author, an insulation process which modifies the electric conductivity of the tissues. When it involves the motor nerves, the muscles which they supply are paralyzed; when sensory nerve trunks are affected, sensation is abolished. In both instances there are characteristic disturbances of the reflexes, together with acid reactions. When invading the vasomotor nerves, there is contraction or increased tension of the arteries and high bloodpressure, leading to apoplexy, paralysis and heart failure—due to a short circuiting of the electric current, the heart being insulated.

As regards the nature of the magnesium deposits, there is pronounced acidity, which depletes the lime, leading up to simple replacement of magnesium; chemic transformation, and that type where the magnesium is united with calcium. As age advances, there is a tendency to crystallization, which produces hardening of the arteries (arteriosclerosis). The remedy for this magnesium infiltration, with its many pathologic conditions following, is dissociation, which is effected by rendering the tissue fluids alkaline. This is, according to our author, best accomplished with some form of soluble calcium. The presence of magnesium in excess impairs metabolism; it hinders tissue change or tissue respiration, and for this we are to restore the digestive capacity, neutralize acid excess, and promote magnesium dissociation.

It is difficult to fully review this work in the limits of space allowed us; besides, the subject of magnesium infiltration is far-reaching, and would entail references to practically most systemic diseased conditions. We have been much interested in reading the work, and admit that we regret we cannot give a fuller, broader review. Suffice it, therefore, that Dr. Aulde has given us in these four hundred pages much to ponder on. The subject is absorbing, and if his suggestions are carried out, will measurably revolutionize our present system of treatment. His theories are backed by clinical results: case histories, citations—all of which will appeal to the intelligent practitioner. The work should be generally read, for it cannot help but prove helpful, as well as interesting.

The Practice of Pediatrics. By CHARLES GILMORE KERLEY, M.D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital. Octavo of 878 pages, 139 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

We have in this work, almost encyclopedic in size and contents, the latest word in pediatrics. It is arranged in parts rather than in chapters, the classification being one which will appeal to physician and student.

The part devoted to infant feeding has, we think, been carefully written. The proper feeding of infants is one of the most difficult to control. Mother's milk is urged with special emphasis by most writers and practitioners, but all children will not thrive on mother's milk, nor can, we think, instructions

be given in books or lectures that more than measurably sufficiently instruct the physician to enable him to meet the varied conditions arising from improper food. Each case is a law in itself and must be studied individually; not alone the child, but the mental and physical attitude or condition of the mother and the child's environment. The author expresses himself forcibly and to the point upon this all important subject.

The treatment of the subjects of Diseases of the Respiratory Tract, that on Nervous Disorders, and the one on the Transmissible Diseases are particularly interesting, and, we believe, full. We would like to have had Dr. Kerley give more than one page on Heredity and Environment; more on Consanguinity, for he must realize that these influences play very important parts, not only in the life of the child, but much throughout the life of every individual.

This is an admirable work and will, we are sure, find a place in most medical libraries, public or private. It is handsomely printed and bound, with 139 illustrations.

Medical Gynecology. By S. WYLLIS BANDLER, M.D., Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital. Third Thoroughly Revised Edition. Octavo of 790 pages, with 150 original illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$5.00 net; Half Morocco, \$6.50 net.

The author of this work declares that because of the importance of the internal secretions and the parts they play in medical gynecology; that as a result of our knowledge of their importance; of the recent studies of the rôle these organs play in the human economy, he realized the necessity of a new edition of his work.

This work is, we believe, the only one which treats alone of medical gynecology, and as such has found a conspicuous place in the library of the physician.

Operative procedures are, we think, properly viewed as a last resort in numerous conditions where experience has shown that medical means can accomplish so much. Conservative treatment in all fields of medicine, especially in gynecology, should be practiced, and it is just this and here that our author's work, not only as author, but as teacher, claims careful thought and study as well as support.

We particularly commend the chapters on Internal Secretions, on Constipation and Carcinoma. Under treatment of carcinoma the author does not mention radium; in fact, we find no reference to it whatever. This is interesting at this time when the element is being so largely discussed in the treatment of cancer.

We believe that the physician in general practice as well as the specialist should be interested in this work. It is true to type of the Saunders publications.

A Handbook for the Post-Mortem Room. By ALEXANDER G. GIBSON, D.M. (Oxon.), F.R.C.P. (Lond.), University Demonstrator in Pathology, Oxford, and Honorary Asst. Pathologist to the Radcliffe Infirmary, Oxford. Henry Frowde and Hodder & Stoughton, London. Oxford University Press, American Branch, 35 W. 32d St., New York. Price, \$1.50.

The title of this small book is fully descriptive. It will be found we are sure of value in post-mortem examinations as well as in the dissecting room.

Treatment of Neurasthenia. By Dr. PAUL HARTENBERG. Translated by Ernest Playfair, M.B., M.R.C.P. Henry Frowde and Hodder & Stoughton, Oxford University Press, Edinburgh, Glasgow and London. American Branch, 35 West 32d St., New York. Price, \$2.00.

Our author defines neurasthenia as undoubtedly central nervous depression resulting from a multitude of etiologic factors: Imagination, cerebral fatigue, attenuation of perceptions, sensation of incompleteness, unfamiliarity of self, hypersensibility to pain, affective disturbances, boredom, misanthropy, emotional apprehensiveness, bad temper, volitional defects, insufficiency of impulse and execution, and organic disturbances. A disease of chronic nervous depres-

sion. Neurasthenia is everything that is pure and simple depression. What is not nervous depression is not neurasthenia. The exciting causes are extremely numerous and varied: physical, emotional and intellectual. Following this elaborate and far reaching definition, we have a chapter on diagnosis and numerous ones on treatment.

There are nearly three hundred pages of very illuminative reading, and as this is a complaint which requires close study to differentiate it from the neuropath, it will be useful to the physician.

BULLETINS AND REPRINTS RECEIVED

COMMUNICABLE DISEASES, AN ANALYSIS OF THE LAWS AND REGULATIONS FOR THE CONTROL THEREOF IN FORCE IN THE UNITED STATES. By J. W. KERR, Asst. Surgeon General, and A. A. MOLL, A.B., Prepared by Direction of the Surgeon General United States Public Health Service. Government Printing Office, Washington, 1914.

EPIDEMIOLOGIC STUDIES OF ACUTE ANTERIOR POLIOMYELITIS. By WADE H. FROST, United States Public Health Service, Government Printing Office, Washington, 1913.

UNITED STATES NAVAL MEDICAL BULLETIN, January, 1914. Government Printing Office, Washington, 1914.

POISONS AND HABIT FORMING DRUGS, A DIGEST OF LAWS AND REGULATIONS RELATING TO THE POSSESSION, USE, SALE AND MANUFACTURE OF POISONS AND HABIT FORMING DRUGS, ENACTED DURING 1912 AND 1913, NOW IN FORCE IN THE UNITED STATES. By MARTIN I. WILBERT and MURRAY GALT MOTTER, Technical Assistants, Hygienic Laboratory, United States Public Health Service, Government Printing Office, Washington, 1913.

MUNICIPAL ORDINANCES, RULES AND REGULATIONS PERTAINING TO PUBLIC HEALTH, COMPILED BY DIRECTION OF THE SURGEON GENERAL. By JOHN W. TRASK, Asst. Surgeon General United States Public Health Service. Government Printing Office, Washington, 1913.

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ORIGINAL ARTICLES

RENAL AND URETERAL CALCULI: CALCULOUS ANURIA*

By LOUIS FRANK, M.D.

Professor of Abdominal and Pelvic Surgery in the University of Louisville, Medical Department; Surgeon to the Louisville City Hospital, etc., Louisville, Kentucky

Recent improvements in the technic of radiography and cystoscopy are responsible for the tremendous impetus to the study of vesical, ureteral and renal lesions, and by the intelligent utilization of these important diagnostic aids it has been demonstrated that renal and ureteral calculi occur with much greater frequency than formerly believed. Moreover, these improved methods of investigation have rendered possible a more systematic study and correlation of the symptoms, resulting in infinitely greater accuracy in diagnosis.

Formerly the surgeon had to depend largely upon the subjective symptoms in making his diagnosis of renal lesions, and in consequence no doubt many patients were operated upon for renal or ureteral calculi under a mistaken diagnosis; for the same reason others were subjected to operation for suspected intra-peritoneal lesions, when the symptoms were in reality due to calculi located above the bladder in the genitourinary tract. The classical diagnostic signs upon which the surgeon heretofore depended were: (1) the presence of blood (particularly macroscopically) in the urine, as originally suggested by Morris, and (2) so-called renal or calculous colic.

According to the observations of the writer,—based upon microscopic examination (sometimes repeated for many days) of the

*Portions of this paper were read before the Louisville Medico-Chirurgical Society.

urine of every patient entering the hospital for operation, supplemented in the majority of instances by radiography,—an incredibly large number of individuals suffering from various diseases other than calculus show the more or less constant presence of microscopic blood in the urine. In many of the specimens of centrifugalized urine, blood (at times accompanied with casts) was demonstrated; but in the vast majority of these, calculi did not exist. On the contrary, in a considerable number of cases in which the x-ray demonstrated the presence of calculi, the diagnosis being subsequently confirmed by operation, blood in the urine was not a constant symptom. However, in a certain percentage of cases blood was more or less constant in the urine.

Socalled renal colic, which has hitherto been considered an important diagnostic factor, is probably no more reliable from a pathognomonic viewpoint than is the presence of blood in the urine, so far as the diagnosis of calculus is concerned. While renal colic indicates an obstructive lesion, it does not necessarily imply obstruction from stone, since it may be due to an accumulation of pus, of blood, or to displacement of the kidney or angulation of the ureters. Conversely, renal or ureteral calculi may exist for years, yet their location be such that obstruction to the urinary outflow is not produced, consequently the individual may never have an attack of socalled renal colic. Calculi may be resident for years in the kidney pelvis, or they may pass via the ureter into the bladder, without the individual suffering an attack of definite renal colic. Under such circumstances, however, the patient may experience occasional discomfort from temporary slight obstruction, the pressure behind the calculus being sufficient to force it onward, but tension upon the kidney capsule being insufficient to induce an attack of socalled renal colic. Therefore, renal colic does not necessarily indicate renal calculus, nor does the presence of a calculus necessarily mean that the patient will suffer from renal colic, since it may be produced by any form of obstruction to the urinary outflow resulting in distension of the kidney pelvis and accompanying intracapsular tension. Even without the presence of a calculus there may be severe pain in the kidney region from vascular changes and consequent obstruction to the renal circulation, the symptoms in every respect simulating renal colic.

The location of calculi may greatly vary, and the radiation of colic produced by renal calculus depends upon the degree of obstruction and the location of the obstructing agent, i.e., a calculus situated in the lower portion of the ureter producing practically complete obstruction will cause pain of a character quite different

from that induced by a calculus located higher in the urinary tract.

The temperature of the patient must always be taken into consideration in making the diagnosis, and an elevation invariably indicates infection. While it is not believed calculi in the genito-urinary tract are necessarily associated with infection, yet when elevation of the temperature exists it must be regarded as an indication of infection, probably the result of a previously partially obstructed urinary outflow, after which the obstruction may become permanent and the kidney be converted into a pus sac. The presence of a tumor may also indicate a previous partial obstruction which has not been permanent.

In the study of renal obstruction there are, among others, two interesting factors to be considered:

(1) Sudden and complete obstruction from calculus is not accompanied by hydronephrosis nor pyonephrosis:

(2) Sudden and complete obstruction produced by calculus is usually unaccompanied by symptoms of uremia.

This is in striking contrast to those cases in which the obstruction is produced by a tumor. The latter class of patients exhibit early symptoms of uremia, and many of them die in uremic coma with or without the supervention of convulsions.

Dr. Leon K. Baldauf and the writer have recently made some interesting observations along this line in connection with experimental work which have been confirmed by clinical experience, viz., (a) that sudden and complete obstruction from calculus is unaccompanied by pyelonephritis, (b) that in chronic obstruction pyelonephritis is of comparatively frequent occurrence, (c) that in sudden obstruction, where only one kidney is involved, the opposite kidney being normal, the patient may develop an hematogenous infection in the obstructed kidney.

These phenomena have been noted clinically, and one patient with a tremendously dilated ureter due to repeated calculous obstruction had recurring attacks of colic even after removal of the calculus. This was to some extent explained by the condition found later at a necropsy, indicating that there may be a "reverse intussusception," i.e., the dilated portion of the ureter above the point of obstruction the ureteral caliber below being normal, may slip over the undilated portion creating a valve, urinary accumulation above producing pressure at this point, and total occlusion result. It will be noted this is just the reverse of what occurs in intussusception of the intestine. In a case of this kind it would be difficult to pass a catheter, and it might be supposed that one had to deal with cal-

culous obstruction, whereas the x-ray would of course fail to reveal the presence of a stone.

In another case observed last summer the ureter was dilated to the size of the index finger, but below the point of obstruction, viz., the lower inch and a half of the ureter, there was absolutely no dilatation. No calculus nor obstruction from any cause was detected in the ureter by x-ray examination or at the operation, although the introduction of a catheter had been previously impossible.

In this connection there came under the observation of the writer a few months ago two cases of calculous anuria, both of which were reported before this society. About three weeks since a third similar case was seen in consultation with Dr. Sidney J. Meyers. The patient, a female of forty-two, gave the history of having had renal colic five years previously, since which time there had been no pain nor discomfort referable to the kidney excepting on one or two recent occasions, nor had she ever passed a renal calculus. Following a recent attack of mild lumbago(?) she developed complete anuria, and when seen thirty hours later she had absolutely no pain. A radiograph revealed in the left ureter four calculi which must have been resident therein for several years, and yet had given rise to no pain nor disturbance until recently. Relief followed the passage of a catheter beyond the obstructing stone which was the one highest in the ureter. Immediately after introduction of the catheter an enormous quantity of urine was discharged. The patient left the hospital ten days later and has since had no trouble referable to the urinary organs.

When operation becomes necessary in a case of this kind, it is exceedingly difficult to determine upon which side it shall be performed. In certain cases there may be no pain, in others pain may be referred to the side on which there are no calculi. Before undertaking operation upon kidney for calculus with or without obstruction, it is necessary to determine the activity of the renal function, and in this particular the cystoscope is of the utmost value. The patient may have a horseshoe kidney, or a single kidney with three ureters distributed to various points. In thirty per cent. of cases of renal calculus the stone or stones are bilateral, and in twenty per cent. after removal of the calculi there are recurrences. In calculous anuria it is important to know upon which side to operate, and this is especially true where there are bilateral calculi. Careful study of the symptoms may indicate the side last obstructed, and in the case of unilateral operation this should be first opened. Personally in such cases the writer would advocate immediate bilateral opera-

tion. To enable one to determine unilateral calculous obstruction, and thus know the point of surgical attack, an x-ray picture is absolutely essential.

One important observation in our work which may serve as a guide to the operator and save considerable time is: In experimental work on dogs, and in operations upon patients for ureteral obstruction, there has invariably been observed a marked edema on the obstructed side. The vessels are tremendously dilated, the edema not only extending into the perirenal tissues but the parietal structures and the subcutaneous tissue. The cause of the edema is difficult of explanation, unless it be due to the manner in which the anuria is produced. On the obstructed side when the pressure of the urinary content of the kidney pelvis equalizes the blood pressure (about 5,240 m.m. of mercury) the secretion ceases, but what accounts for it on the opposite side? Certain authors have claimed that where the patient has two kidneys the unobstructed one must have been previously much diseased. It has also been stated by French authorities that with unilateral calculous anuria where there are two kidneys, that the life of the individual has been sustained by the function of one kidney only. This hypothesis has been clearly disproven by clinical observation, as there may be complete anuria due to unilateral calculous obstruction where the opposite kidney is normal so far as the function and output of urine is concerned. Whether it can or cannot occur, under these circumstances, is a purely academic question. That it does occur the writer has definitely noted, but whether or not the anuria is due to a renorenal reflex is a debatable question. Cases have been observed in which the pain (due to calculi) was referred to one side, yet the cystoscope and x-ray revealed that the calculi were located upon the opposite side, which was later confirmed by operation. After removal of the calculi the symptoms promptly disappeared.

Admitting that renorenal reflex pain may occur, it is believed anuria with unilateral calculous obstruction must be due to a different cause. It is the writer's belief that suspension of renal function results from the tremendous degree of hyperemia and over distension of the unobstructed or normal kidney, that in the attempt of one kidney to perform the excretory function of both the excess blood being retained in the vessels produces pressure which increases until the kidney virtually "puts itself out of commission" by over distension with arterial blood.

In another case, an infant of three months, reported to the writer by Dr. W. H. Coleman, there was complete anuria persisting eighteen days, later followed by the passage of a calculus from the

bladder. The child had tremendous edema and became comatose.

A peculiar feature about calculous anuria, in comparison to that produced by other forms of obstruction, is that in the former if symptoms of uremia supervene it is never until just before dissolution. The mind may be perfectly clear for ten, twenty, or even forty days, with no evidence whatever of uremia, and then the patient suddenly becomes comatose and dies within a short time.

PSYCHANALYSIS OF CRIMINALITY*

BY T. D. CROTHIERS, M.D.

Hartford, Conn.

Psychanalysis is a study of the early causes, conditions and circumstances which have impressed the mind and body so profoundly as to influence and change all subsequent life.

Recent psychological researches show that the activities of the brain and organism are controlled by distinct laws, following a line of origin, growth and culmination; also crime, pauperism and other abnormalities can be clearly traced to influences and causes which began long ago, and have been fostered and grown up to the present.

My purpose is to indicate from the histories of a few persons some of these controlling forces, and show how mental and physical impressions, suggestions and abnormal thoughts and training, influence and fashion the future of the individual.

A professional burglar, who killed a watchman in a bank, is an example. His father was a Methodist clergyman, living on the ragged edge of poverty all his life. His mother was a neurotic, erratic woman, who dreamed of wealth and the power which it brought, and talked continuously of the dishonesty of rich men, and the ideality of human life from the possession of money. She probably read and commented on everything in the papers, concerning the rapid accumulation of wealth, and the dominant thought in her mind was to secure riches and power. Probably the methods and means of securing this were not considered.

In this atmosphere, her son grew up, and like his mother he early showed an unusual interest in these topics, and gloated over the schemes to acquire wealth, and reveled in the power that it would bring them. He worked his way through college, was a diligent student, but was intensely selfish and grasping, and seemed to possess very low notions of the rights of others, when his own interests were in question.

*Read before the New York Medico Legal Society at the April meeting.

He studied mechanics, and showed great interest in explosives and lock making and was a teacher of science, but was irregular and changeable. Every now and then he would disappear for a time, and return with evidence of having acquired considerable wealth.

He moved from place to place, and claimed to be a mining engineer. Finally he was arrested for the homicide of a bank watchman, and it was found that he had been an expert burglar for a number of years. He was convicted and executed.

There can be no question but his criminal conduct grew out of the incessant suggestions of his erratic mother and her continued longing for wealth and its power. The dominant thought of his mind was to acquire money at any cost, and burglary seemed to be the most natural method of securing it.

A man now serving the second term in prison, for forgery and counterfeiting, had this history. His father was a tricky, boastful man, whose highest pleasure seemed to be in talking over the petty advantages he had secured in his business, and the profit that he had acquired from the credulity of his customers. His mother, a nervous weak-minded woman, enjoyed these triumphs, and they were constant topics of conversation.

The two boys, and only children of this family, became swindlers and forgers, raisers of bank notes and promoters of almost every scheme of dishonesty that came to them. One died in prison and the other is still serving a long term of sentence. The father's dishonesty, cunning and boastfulness were literally schools of training and culture for criminal life.

Another example which attracted a great deal of attention at the time was that of a pyromaniac, who was a prominent politician and banker, as well as a reputable strong man. He used spirits moderately at times. For a long time it was noticed that wherever he went, and remained for two or three days, a fire occurred, principally in old houses and barns in the neighborhood. He was always among the first and most active in his efforts to put it out. This occurred so often that it finally resulted in his detection and arrest.

He was placed in an insane asylum. The family history showed that his father, who was a moderate drinking farmer, had all his lifetime a strange fascination for burning unsightly objects not only on his own farm, but he would assist his neighbors and friends to burn rubbish and other useless things. He spent a large part of his time every year in gathering brush, old fences and worthless things, and making bonfires of them.

In all probability these things were commented on in the family

and defended as the proper thing to do. His son, after middle life, developed the same instinct, particularly to destroy by fire objects that seemed unattractive and useless.

This was done in the most secretive way with the least possible danger to human life.

Another prominent example was that of an American physician in London, who was convicted of murder for giving aconite to his nephew. The motive was to secure property. There was much confusion as to the exact causes of death, as morphine had been given, and this afforded a defence.

The case became notorious, because the President of the United States appealed to the home Government of England to delay the sentence until the facts could be made clear. He was finally executed.

Inquiry into his family history revealed the fact that as a boy, he was encouraged by his father, a quack doctor, to experiment on animals with different drugs, and determine what would cause death most rapidly. This had gone on for several years. He became fascinated with the destructive power of drugs and extracts, and talked about them very freely to his associates.

This was undoubtedly a training and an actual culture of the use of drugs which had grown and terminated into the killing of his nephew. His early experiments were without purpose or object, and entirely unrestrained.

A murderer recently executed, whose crime was particularly brutal, is another example of psychical influences in early life.

The mental atmosphere of his home was noted for violent words and threats. As a boy he was very passionate and somewhat wilful, and his parents sought to overcome this by rousing the wildest kind of fears. For acts of disobedience, they would threaten to cut off his ears, take out his eyes, cut off his tongue and kill him. This language suggested wild atrocities, and while they were found to be meaningless, they left a permanent impression on his mind of the value of force and threats to accomplish certain purposes. When he went out into the world, he used the same violent language and finally this materialized in the most brutal murder.

All this grew out of the wild threatening words and stormy impressions of his home life.

A similar example, of a murderer, was traceable to the impressions received from the frequent quarrels and assaults of his parents seen in early life. This literally trained him to a similar course of violent conduct, to overcome and correct difficulties, which occurred in later life.

Similar illustrations will occur to every one of petty criminals, swindlers, defaulters and persons whose lives are a continuous round of cunning, intrigue and dishonesty. A study of their early life and home training will indicate clearly the origin of such conduct, which in many instances may be traced to parental influences, books, newspapers, bad training, and want of training, all of which have fashioned and shaped the future.

In my experience confined to the study of alcoholic neurotics, I have found a great many persons who literally reproduce in their own lives, the abnormal and criminal conduct of their parents. Certain early mental impressions may have produced a revulsion. Others have been profoundly fascinated and impressed with lines of conduct and conceptions of life which they followed with absolute certainty, through all their future.

Criminals who are born and raised in the slum districts and exposed to everything that is abnormal, are expected to reflect their bad surroundings and training, but those who are born and raised in exemplary conditions, with good influences and culture, are a continual surprise to us all. It is only by a careful psychoanalysis of the influences of early life, that any real explanation of their conduct will appear.

The text-books that describe criminals of passion, criminals of surroundings and circumstances, and criminals growing out of morbid impulses do not explain or throw any light on the psychical causes which are prominent and move with the same certainty as physical causes.

Until a very recent period, stationhouses, jails and prisons where prisoners mingled freely with each other, were found to be the most positive schools for the culture and training of criminals. Weak-minded, ignorant, thoughtless young men and women, confined for petty offenses, were brought in contact with hardened criminals, and learned the arts and methods of criminals and the fascination of crime, and actually became students and followers of this life.

Nothing could be more positive and absolute than the personal culture and training of this kind.

Fortunately this is being remedied in some measure, and yet it exists today in many places.

Outside of all hereditary influences, we must recognize the beginnings of all grades of abnormality and criminality, founded on low conceptions of duty and obligation, false beliefs and impressions. Anarchistic sentiments and reasonings, class hatreds, misconceptions of life and delusional theories of progress and growth, are forces at work in every section of the country; also circum-

stances and conditions based on false reasonings may be concealed for a long time, and then under strain of temptation develop into the most startling crimes.

Overtrained men and women in certain directions and profoundly ignorant in others, furnish a class of criminals that are more or less prominent. Evidently this irregular culture and training diminishes the power of adapting themselves to the surroundings and living sane, normal lives. Not unfrequently we are astonished at the criminal conduct and acts of persons previously reputable and supposed to be sane in every way. Such persons all at once display a startling moral palsy and absolute disregard of the rights of others and their duties and obligations. Such persons are often prominent in so-called corners, in which an effort is made to control a certain product and increase the price regardless of suffering and loss to others. This is literally criminality, differing only in degree from the thief and the burglar.

When such men come into notice and their former life is examined and studied, distinct causes will appear. Intense selfishness, money worship, grasping and palsy of every sense of duty and obligation to others, are the cultures and trainings that began in early life.

Through circumstances this was concealed and suppressed, and through other circumstances it came to the surface. Out of this there will be new questions of accountability and responsibility.

One conclusion that should be made prominent is, that all studies of crime and criminals are incomplete, except from a psychanalysis of early life, training, nutrition and surroundings. At present, great emphasis is put on the character of the crime, its history and possible motives and very little attention is given to the mental and physical organism, its growth and development.

If the criminal has obvious mental defects, such studies are suggested, but without these he is regarded as sane and competent to understand and control himself. In reality, the real germ causes of crime are unknown unless from an exhaustive study and analysis of early life.

A second conclusion is that the present legal treatment of criminals by punishment, suffering and death, is antiquated and barbaric. Every new advance of science reveals the absurdity of the present methods, and every new study of the brain and the laws which control it show the folly of our present methods, and the certainty of producing and continuing the present conditions, which punishment aims to correct.

There is one conclusion that is forcing itself in all scientific cir-

cles and upon all students of exact science, namely, that criminality of all kinds is the projection of barbarism into our civilization, that should be suppressed, also that criminality, like typhoid fever, can be mapped out, studied, and checked by destroying the breeding places, breaking up the soils and conditions in which it is developed.

It is by no means an utopian idea, that the time is coming when crime shall be driven out the same as yellow fever, malaria and other diseases. A fact of great practical value has not been adopted only in outline, viz., that criminals should be deprived of their liberty and not executed; that they should be restrained and made self-supporting and placed in a military serfdom. In this way, their abnormal conduct can be turned into rational lines and in some way made to repair the injury inflicted upon society.

Questions of responsibility and accountability must be judged from a higher point of view, and the future of abnormal men and women must be regulated, controlled and directed, along exact lines. This can only be accomplished by a psychoanalytic study of the causes and influences which impressed the early life, in homes, schools and in the business world.

It is from these facts, that the nature and character of the disputed cause can be determined.

PSYCHANALYSIS OF CRIMINALITY*

BY I. L. NASCHER, M.D.

New York

It seems to me that we might get a somewhat different conception of criminality if we consider the perverse phases of human conduct in their relation to the primal instincts of self preservation and race preservation and the acquired human instinct of communal preservation and perpetuation and, secondly, in their relation to education by which we learn to regulate the measures for giving expression to these instincts, the teachings of ethics applied to the primal instincts and of economics to the communal instinct.

Minds differ in their capacity, in their receptivity and retentiveness, in their conception of ideas and ideals, in their interpretation of impressions. The same mind reacts differently to different impressions receiving and retaining some without apparent effort, while other impressions fade rapidly unless there is a determined effort to retain them. It is, however, possible to impress any rational idea upon the normal mind and by persistent effort, through

*An elaboration of the author's discussion of the foregoing paper on Psychoanalysis of Criminality.

force of habit, fix that impression or idea so firmly that it becomes part of consciousness and subconsciousness. The child is ambidextrous until after repeated correction it acquires greater facility in the right hand and thereafter it employs the right hand unconsciously and the left hand only through conscious effort.

Notwithstanding the oft repeated statement that right handedness is natural and physiological and left handedness is unnatural and pathological, I am satisfied from experiments I made upon myself that it is a matter of habit.

The child has no sense of personal proprietorship until it has been taught to ask for what it wants. It knows nothing of righteousness or crime, virtue or vice, right or wrong. It has no conception of public policy or sex relations, no sense of justice, pride or order, no modesty or honor. It expresses no emotion or sentiment. Indeed, aside from a vague fear of something unknown, which is bound up in the instinct of self preservation, there is no instinctive emotion or sentiment. Not even maternal affection is instinctive. The mother shows no affection for the still born child or the child that dies soon after birth. She may show emotion, regret, disappointment, anger, but not maternal affection. That affection develops as the child relieves the mother of the distress occasioned from over filled breasts just as the lioness tenderly cares for her cubs while she requires them to relieve her. Replace a nursling cub by a nursling cub from another mother and the lioness will take the same care of the newcomer. After the nursing period is over the mother if hungry is as likely to devour one of her own as the other. Wet nurses often become attached to their charges, while mothers who do not nurse their children slowly acquire the intense maternal affection which comes from close contact and association. This is, however, a side from my subject. The child learns to regulate the measures for carrying on its instincts either by precept or by imitation. It learns to restrain its wants and respect the rights of others until that restraint and respect become habitual and a part of its natural conduct.

What we call righteousness and virtue are phases of human conduct which result from the persistent teachings of ethics until the restraints which the ethical code imposes become habitual. When these restraints are so firmly fastened in the mind of the individual that he cannot release himself from them without a conscious and determined effort, any lessening of these restraints which permits a deviation from the code appears unnatural. The code itself may be changed through social custom or public policy and, receiving general approval, new forms of restraint may be adopted.

Older individuals, in whom the old forms have become so deep-rooted that it is impossible to upset them, cannot readily accommodate themselves to new forms of restraint. They adhere to old methods and look askant at innovations which lessen restraint in certain directions.

Criminality then is a phase of human conduct which results from a laxity of the restraint imposed by the code of ethics adopted by society to regulate the measures for giving expression to the primal instincts. The term is made to include perversion of the measures to regulate the communal instinct, although such regulation is statutory, has a local application and changes with time, place, public policy, sometimes with the whims of rulers and law makers.

Laxity of ethical restraint occurs when it has not been so firmly fixed as to be habitual and part of natural conduct. This may be due to defective teaching, either not sufficiently impressive, not sufficiently persistent or not sufficiently clear to form a concrete idea. The fault lies in the neglect to study the psychology of the child during the early impressionable period. It is necessary at this time to study the mental and moral capacity of the individual and determine the predominating traits. These traits are expressions of character which the child's mind readily adopts through precept or imitation and it requires but little effort to develop them, while it requires persistent effort to suppress them and replace them by others. We call the individual naturally good if the early predominating traits are acceptable, naturally bad if they are objectionable. But the naturally bad child can be made good if we study the child's mind, discover the weak spots, suppress the faults and instil the sense of right until that sense becomes habitual.

Thus a child may show an early aptitude for economics, show an appreciation for values, or what is termed the commercial instinct. Without an equally strong sense of justice and personal proprietorship that child will become a criminal, either a thief, a swindler or a dishonest gambler. By developing the ethical side of the child it will retain the commercial instinct and combine it with a sense of justice. In like manner all the virtues may be impressed and the vices suppressed if we study the child's mind for the purpose of discovering its traits and ideals.

Criminality is not an inherited and rarely an inherent defect. In an environment of vice and crime the child learns vice and crime by precept and imitation. In an environment of virtue and refinement the child learns virtue and refinement. The much quoted Jukes family is an example of the one, the Edwards family is an example of the other. We may safely say that a great majority

of children in foundling asylums are illegitimate, that a great majority of children under the care of the Children's Aid Society are children whose home environment was vicious and vile. Recognizing the value of environment in molding character these children are placed with families whose home surroundings are good, and where they can be kept under observation. It has been found that very few of these children go wrong. The very fact that the foundling has been cast adrift indicates a depraved mind in the parents, yet those children with proper teachings become honorable men and women. Doctor Crothers gave some typical examples of criminality developed through improper education. Let me give one example to illustrate my point. Three little girls were taken from a foundling asylum and adopted by a woman who had been in the theatrical profession. She developed these girls into singers and dancers, impressing upon them at the same time a sense of morality and justice. These girls later appeared upon the stage as sisters, working in refined music halls and also in houses where indecency and obscenity were permitted by the audiences. Notwithstanding the temptations which were offered from in front and from behind the stage, the three girls remained straight and honest, and married men in the profession. I am intimately familiar with the life of one, who in spite of her husband's acknowledged infidelity, in spite of his absence sometimes for many months at a time, in spite of his harsh treatment at times, and in spite of the many temptations to which she was and still is exposed, almost daily, maintains a high sense of honor. The husband died about a year ago leaving her and a child virtually penniless. She worked for months to repay the funeral expenses which were met by her husband's friends without thought of repayment, she rejects every proposition which might possibly be construed as an impropriety and notwithstanding lessened earning capacity and increased expenses occasioned by the care of the child, she refuses to accept a dollar which is not honestly earned, and refuses any aid which might place her under obligations to an individual. Her sisters have been more fortunate but all have retained that strict sense of morality and justice which was inculcated in them during their impressionable youth.

Criminality usually results from defective education, not from any inherent or from any inherited defect. There are, however, perverse phases of conduct which are due to inherent defects which cannot be corrected by education, and other perverse phases of conduct which result from inability to control passions or emotions. The term criminality, however, is made to cover all perverse conduct except such as results from mental incapacity to distinguish right

from wrong. The same perverse act may then fall under one of four heads:

Criminal acts due to inherent moral defect or perversion.

Criminal acts due to inability to control passion or emotion.

Criminal acts due to inadequate or perverse education.

Criminal acts due to mental incapacity to distinguish between right and wrong. This is generally associated with low intellectuality.

The first is often associated with a high order of intellectuality and is usually expressed in sexual perversions and crimes involving the infliction of pain. Fear of punishment, exposure, or dishonor are the restraining influences, but being inherent this form of criminality cannot be eradicated from the individual. It is part and parcel of his personality.

The second form of criminality is expressed in acts of violence. It is the brain storm of the individual, the panic of the mass. The East Indian runs amuck in blind fury; the soldier, seeing his friends fall at his side, shoots, hacks and stabs, the single thought "Kill" dominating his whole being. The same idea dominates the man who sees his wife assaulted. Anger may increase slowly or rapidly until the stage of frenzy is reached when the control of the passions and emotions is lost. This control depends upon the temperament of the individual, but it may be regulated to some extent in early life by education. The control is diminished in some diseases, notably diseases of the heart, of the brain and cord and diseases which are persistently painful.

Criminality due to defective education is the most prevalent form, the form which can be prevented by proper education of the child. It exhibits itself usually in crimes against property or against the state, or in such offences as are included in the term "loose morals."

Perverse acts under the fourth head are classed as insane acts and should not be included under the head of criminality. The pyromaniac, the kleptomaniac, the aged individual who assaults a child during an attack of sexual fury which occasionally occurs in the senile climacteric, the religious maniac who kills to make a sacrifice to God, are criminals in respect to their acts, but not in relation to their mental capacity. The pyromaniac and kleptomaniac are impelled by an uncontrollable morbid impulse which they know is wrong. The religious maniac and the senile dement who commits rape do not know that they do wrong.

Criminality should be studied from the standpoint of the psychologist. The old theory that the punishment should fit the crime

is abhorrent to the sense of justice, which considers motive and mental capacity, the offender and not the offence, the underlying fault and not the nature of the act.

SAVING THE BABIES

By JOHN AULDE, M.D.,

Philadelphia, Pa.

In view of the enthusiasm recently developed on the subject of Child Welfare, it will not be out of place to direct special attention to an important factor which should be regarded as essential in our efforts to save the babies. This factor, which is incidental to children's diseases, exercises an important influence upon the severity of all disorders, and besides, it is constantly present, but hitherto overlooked, neglected or not understood. This announcement will not be regarded as sensational when it is borne in mind that the science of nutrition is still in its infancy, and it seems most unfortunate that Boards of Health, charity organizations, and philanthropists should not be able to take advantage of all the circumstances incident to disease of children, especially disorders of the summer solstice.

The foregoing remarks are prompted by a statement which appears in the Foreword of a publication recently issued by the Luther Burbank Society to the effect that while nearly two hundred million dollars are annually expended by agricultural institutions in this country, the average acre-yield has been increased but a trifle over three per cent. Then comes the sensational announcement that if those who depend upon the soil for their livelihood knew what Luther Burbank knows, the acre-yield would be increased by doubles and trebles *without any expenditure of public funds*. Of course, Mr. Burbank has the evidence and can prove his assertions, notwithstanding the fact but very little attention is given to working out his theories—while his methods and discoveries are interesting and instructive, comparatively few have thought it worth while to make a practical application of his teachings.

Substantially the same conditions obtain in medical practice, and a statement similar to that issued by the Luther Burbank Society can be made with respect to the practical application of certain scientific principles in saving the babies. That is to say, if the Boards of Health, charity organizations, philanthropists and medical practitioners understood and appreciated the underlying factors responsible for summer diseases in children, the number of sick chil-

dren would not exceed one-half the present list, while the duration of illness would be days instead of weeks, *and there would be no relapses*. Where one hundred dollars is expended for medical treatment and nursing, the results claimed would be secured by the expenditure of not more than ten cents—the question is, *Will the medical profession make the practical application?*

Like Luther Burbank, I have the evidence, and can prove the claims, but a single illustration will probably suffice to confirm the announcement, as follows:

About ten years ago (July, 1904), while spending a few days in a small town in central Pennsylvania, I was asked one evening about dusk to go and see a sick child. The messenger said her little brother, two years old, had been sick for a week, and that he had been gradually getting worse; that the doctor had a consultation with another physician during the day, and they had decided that nothing further could be done for the child—and the attending physician had left town for the day. It seems that some friend had become interested in the child, and requested the parents to send for me, thinking that the other physicians had failed to discover the secret of successful treatment. Accordingly, I saw the child, and found him in a decidedly critical condition. The mother said they had tried to give him different kinds of food, but if they gave him a single teaspoonful, it caused a bowel movement; in fact, the child was semicomatose, the eyes were merely white streaks, while the jactitations from intestinal poisons were frequent and severe.

This was a typical case of ileocolitis, but under the usual treatment, such as intestinal antiseptics, colonic flushing, and fresh air, the outlook would have been decidedly unfavorable. But this was clearly a case of calcium depletion, arising from the acid excess incident to the original attack—that is, it began at the beginning. As soon as the child became sick, there was a diminished alkalinity of the blood, an excess of acid in the system; hence, immediately, there was calcium depletion, the acid combining with the calcium to remove it from the system, that is, from the body fluids and tissues. The intestinal putrefaction and bacterial flora were of secondary importance, a statement which will prove heretical in the extreme.

Treatment consisted in the administration of calcium sulphate dihydrate in the form of tablet triturates, each containing $\frac{1}{4}$ grain. The mother was instructed to give the child at once five tablets on the tongue, and this was to be repeated at intervals of an hour until the child went to sleep, and during the night if the child woke up. Further instructions were given that if the child was living in the morning, treatment should be resumed and instruction were given

also in regard to the diet on the following day, but no nourishment was to be administered that night. As a result of this treatment, the messenger called upon me the following day about eleven o'clock and said the boy had a pretty good night; that he had had his medicine regularly and had taken the food ordered, and had been sitting up in bed with his playthings and having a good time.

Now, the gist of my contention is that we shall succeed in saving the babies by the administration of calcium (lime), to restore that which is lost from a diminished alkalinity of the blood, or acid excess, because it is a factor which is essential to promote function and restore normal conditions. While the brain substance contains but one part calcium to ten parts magnesium, and muscle contains one part calcium to three parts magnesium, the inorganic structure of bone consists of fifty per cent. calcium. Such being the case, we can readily understand how calcium depletion causes nervous depression, muscular weakness, and skeletal defects, even a single day's illness is sufficient to demonstrate the correctness of the working hypothesis.

THERAPEUTIC INDICATIONS FOR NITROGLYCERINE

BY STANLEY EISS, M.D.,

New York.

This compound, generally, but wrongly called nitroglycerine and also known as "Glonoin," is a trinitro glycerol represented by the formula $C_3H_5(NO_3)_3$. This chemical was discovered by Professor Soper, of Turin, in 1847. Although a nitrate, the action of nitroglycerine, when introduced into the body is specifically that of the nitrites, though for some reason much more persistent in its effect. In medicine this drug is commonly administered either in its official form, which is the *Spiritus Nitroglycerini*, a 1 per cent. alcoholic solution, or in hypodermic tablets of various sizes, 1/100, 1/250, or 1/500 of a grain.

The initial effect of this drug is to dilate to a marked extent the arterial blood vessels. This is brought about in two ways: first, by the direct action of the drug on the muscular coat of the arteries and, second, by its depressing, almost paralyzing, influence on the vasomotor nerves. As a consequence blood pressure is lowered and the pulse made softer and more compressible. The blush area becomes markedly flushed.

In angina pectoris accompanied by marked arterial spasm, it is equalled by no other drug, but should be given in full doses, and,

if there is much myocardial insufficiency, it may be combined with strophanthus. Murrel (Med. Brief, May, 1897) is one of the foremost advocates of nitroglycerine in this disease, and to facilitate rapid absorption of the drug he recommends its administration in some stimulating mixture. His favorite formula is the following:

Spirit. Nitroglycerini	
Spirit. Chloroformi	aa dram $\frac{1}{2}$
Tr Capsici	dram 1
Aqua Menth. Piper. ad	oz. 1

Sig. dram one every 4 hours with an extra dose immediately at the onset of an attack.

In sciatica the hypodermic injection of 1/50 gr. of nitroglycerine combined with 1/4 gr. of morphine will frequently give marked relief when morphine alone will have no effect. According to Osler, the long continued use of nitroglycerine for relieving the high tension in pains in locomotor ataxia has proved successful.

In acute Bright's disease, with increased arterial tension, and in uremic convulsions its combination hypodermically with pilocarpine is of marked value. The same combination has given a very prompt and happy result in a case of puerperal eclampsia.

Its most important application is to relieve the cardiac embarrassment consequent to high arterial tension formed in many cases of chronic interstitial nephritis. It was recommended by J. M. Da Costa as a remedy to decrease the excretion of albumin in chronic parenchymatous nephritis. In Bright's disease attended by high arterial tension (cirrhotic kidney), the following combination proved very successful:

R

Spirit. Nitroglycerini	minims XVI
Tr. Digitalis	
Tr. Strophanthus	5 ss ($\frac{1}{2}$ dram)
Tr. Belladonna	minims VIII
Elixir Simple q. s.	ad oz. ii.

Sig. one teaspoonful every 6 hours until effect upon the pulse is obtained.

Nitroglycerine is a valuable drug in many cases of vomiting. Given in doses of 1/200 gr. hypodermically, with morphine, it will prevent the nausea usually produced by that drug.

The dose of the Spirit of Nitroglycerine is ordinarily 1 to 2 minims, but in interstitial nephritis it is commonly given in ascending doses until the desired effect is obtained or untoward symptoms

appear. More than one dram of the Spirit of Nitroglycerine has been taken three times a day with no ill effects.

A few drops of the Spirit of Nitroglycerine placed upon the tongue has been used with success in order to relieve the craving of opium habitues. Dr. Speer records a case in which nitroglycerine was successfully employed in morphine poisoning, six grains having been taken by a lad aged 17 years. An injection of 1/50 gr. of nitroglycerine was soon followed by an improvement in the respiration and in half an hour, by vomiting, after which 1/100 gr. was administered in the same manner. Two hours subsequently the patient was out of danger.

Case reports attribute great relief in Raynaud's disease from the hypodermic injection thrice daily, of gradually increased doses of nitroglycerine. In threatened collapse caused by pneumonia, and in pneumonia and hypostatic congestion of the lungs, where the right heart is usually taxed, both in its capacity and by the work to be done, drop doses of the Spirit of Nitroglycerine as advocated by Dr. Andrew H. Smith, meets the condition nicely and effectively, and often act as a diffusible stimulant averting the danger.

In the algid stage of cholera one or two drops of the Spirit of nitroglycerine placed upon the tongue causes dilatation of the peripheral blood vessels, decreases the blood pressure, and relieves the heart.

Dr. Humphries found this drug valuable in acute and chronic gastric catarrh of the infant and adult, and has used it successfully in various forms of vomiting, especially that of pregnancy. Given hypodermically it acted as a prompt restorative in a case of poisoning from illuminating gas.

In sudden heart failure, where the heart is simply tired and flagging from an over amount of work with unusual demands on its force and capacity, nitroglycerine is of the utmost value. But in heart failure from actual disease or abnormal changes in the heart muscle itself, or lesions of the mitral or aortic valves—conditions which are always productive of greater or less degenerative change in the myocardiac structure,—the drug is contraindicated.

Some of the cases in which nitroglycerine has proved very successful:

- I. Cardiac irritability due to excessive use of tobacco.
- II. Cardiac irritability and palpitation due to tobacco.
- III. Double aortic lesions complicated by intense paroxysms of angina pectoris.
- IV. Aortic stenosis with weak heart and severe breast pain.
- V. Simple cardiac palpitations of neurotic origin.
- VI. Chlorotic anemia with seizures of intense thoracic angina.
- VII. Simple nervous palpitation arrhythmia.

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JOHN W. WAINWRIGHT, M.D., EDITOR

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JOHN W. WAINWRIGHT, M.D.
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EDITORIALS

THE QUESTION OF CANCER

The subject of cancer has been considered from all points of view, almost ad nauseam in the medical and lay press, during the past two or three years. This continuous iteration would be foolish did it not serve the useful purpose to educate the public as to the menace of cancer, and chiefly to impress upon the minds of the layman, and more especially of the laywoman, that the only hope of successful curative treatment lies in an early diagnosis. And further, that it is impossible to make an early diagnosis unless non-medical persons know something of the initiatory stages.

The causation of cancer is almost as much of a mystery as it was in the days of Hippocrates. Medical men are still groping to some extent in the dark, although certain salient facts are known concerning the exciting causes of malignant growths. At the meeting of the American Surgical Association held in New York on April 9, 10 and 11, Dr. William J. Mayo, of Rochester, Minn., took as the subject of his presidential address the question of cancer. He marshalled in orderly array the main points which are known to be of consequence in the causation and consequently in the treatment of cancer.

For example he laid emphasis upon the knowledge that precancerous conditions seem to invariably follow chronic irritation, or as

the hypercritical prefer to term it "chronic injury." Externally the site of malignant growths, is almost always the site of chronic irritation. The natives of Burmah are attacked by a peculiar form of cancer of the mouth, possibly because they are addicted to chewing betel nuts, and the irritation caused thereby may bring on cancer. Cancer of the groin appears to be largely confined to sailors and to those whose work entails much climbing. Epithelioma of the lips and tongue may be brought about by pipe smoking and so on.

Cancer of the gastrointestinal tract is likewise, in all probability, frequently produced by chronic irritation. An individual eats and drinks more than is good for him, more than his digestive organs can assimilate and of unsuitable food. This habit continued over a long period develops into chronic irritation; hyperacidity, a result of the errors of diet becomes established, a vicious circle is formed, an ulcer is the outcome, which may and often does culminate in cancer. As Dr. Mayo remarked, among civilized men, cancer of the stomach forms one third of the cases of the disease, while nothing like this proportion is observable among uncivilized men or among the lower animals. It would seem then more or less obvious that food is an important contributing factor in the causation of cancer of the gastric regions in civilized countries and it is to the quantity eaten rather than to the quality that the blame must be laid.

Granting that chronic irritation is the chief exciting cause of cancer, what is to be the manner of treatment? Of late altogether too much has been written both in the medical and the lay press with regard to the therapeutic properties of radium in its treatment. At the meeting mentioned above the subject of treatment by radium was dealt with. Dr. Richard Sparmann, of Vienna, a member of the clinic of Dr. Anton von Eiselberg, read a paper on the value of radium in the treatment of cancer. He said that their experiments in Vienna showed that it was effective only in cases of superficial malignant tumor, and even then it was not effective in a marked degree. Radium had actually made worse many tumors by destroying healthy tissue around them; so that there was nothing left to check its spread. There had been no specific change in

tissue by radium, and it did not appear that it would ever replace operation in the treatment of cancer. The hopes that had been placed in radium treatment had not been realized.

The majority of those present appeared to be in agreement with the conclusions of Dr. Sparmann. No one will deny that radium has great possibilities in the treatment of malignant growths, but no one can assert, that with our present knowledge of its therapeutic properties and application that it exerts a specific action upon growths of a cancerous nature.

Fulguration has been and is being tested with some success in the treatment of malignant growths, but as Dr. W. S. Bainbridge said in an address on cancer with a demonstration of cancer cases at the Skin and Cancer Hospital, New York, on April 30, fulguration is only on trial and nothing can as yet be definitely stated as to its action on cancerous growths.

The treatment of cancer then resolves itself into operative measures. But operation to be successful demands an early diagnosis, and the stumbling block to diagnosis of cancer in the gastric regions especially is extremely difficult. In perhaps the majority of cases cancer of the gastrointestinal tract is not diagnosed until it is too late to operate with much hope of success. Dr. Mayo drew attention to the somewhat comforting fact that in cancer of the stomach the radiologist had been able to make a definite diagnosis in 87 per cent. of the cases, while the best that had been accomplished by other means had been 67 per cent. Upon an early diagnosis and prompt and skilful operative measures is based the sole hope for a successful issue in the treatment of cancer, so far as is at present known.

With regard to the prevalence of cancer, although it has increased and is increasing, it probably is not increasing at the rate which the public press would have us believe. It must be borne in mind that statistics, unless the registration is uniform and accurate, are not to be relied on. Therefore, the accounts constantly being published respecting the rapid increase of cancer should be taken with a certain degree of reservation.

LIFE INFLUENCES

Dr. Davenport defines environment as what we have, training as what we do, and heredity as what we are. Environment and training may result from the fortuitous circumstances of life, which are ever changing, but heredity is fixed by immutable laws and defies the intervention of man.

DOGMATISM

Dogmatism is not confined to the churches. When a scientist really sets about it, he can be more dogmatic than any theologian. Our readers have heard of the so-called "Learned Horses of Elberfeld," and the interest they have for students of animal psychology. They have frequently been visited by investigators, and some of their recently reported attainments are such as to excite astonishment. But at the Zoological Congress at Monaco, a protest was presented by more than a score of zoologists against any discussion of the Elberfeld horses. The curious thing is the ground alleged which is that "the doctrines contradict the concept of evolution, and that they are irreconcilable with the results of the scientific physiology of the senses, and of the psychology of animals; to allow this movement to spread unopposed would involve the new, and still ill developed, discipline of animal psychology in prolonged discredit." This is enough to make an Elberfeld horse laugh.

ANESTHESIA

Sir Lauder Brunton says that the oldest writer on pharmacology was Solomon, who, more than 2000 years ago, recommended as an anesthetic for both physical and mental pain the use of alcohol. The sentence Solomon wrote was: "The drunkard says, 'They have beaten me and I feel it not. I will seek it yet again.'" That was physical pain: the man did not feel the beating. For mental anesthesia Solomon's direction was: "Give wine to him that is of a heavy heart, and strong drink to him that is ready to perish that he may drink and forget his misery." That was mental anesthesia. So they might say that Solomon long ago was working very much on the lines of modern pharmacology.

WHAT IS NEURASTHENIA

Analysis shows that the neurasthenic is one who suffers from a diminution of activity of the central nervous system: indications of weakness, of irritability, of inadequacy, or inability to engage in either physical effort or intellectual work; a loss of memory; of power; of concentration; of will power; sexual coldness; motor, sensory, emotional organic functions.

The intellectual disabilities of the neurasthenic, writes Paul Hartenberg in his interesting work on the Treatment of Neurasthenia, Oxford Press, 1914, consist of a diminution of psychic activity with sensation of fatigue, which like motor disabilities may be divided into the elements, a weakening of active capacity, greater rapidity of exhaustion and slowness of restoration, affecting the attention, the memory, imagination and reasoning power. The external sensory impressions lose in clarity of outline and vividness; auditory activity is diminished; tactile sensation is lessened, also the sense of reality. There is diminished corporeal perception, a sensation of incompleteness, unfamiliarity with self. There is melancholy, a sense of boredom (*ennui*), monotony, incuriosity, pessimism, misanthropy, bad temper. There is insufficiency of impulse, elaboration and execution.

Neurasthenics may suffer from organic disturbance, vascular hypotension, retarded respiration, gastrointestinal atony, atonic constipation, diminished nutrition, secretion and sexual depression. There may be vertigo, tinnitus aurium, palpitation, gastric and intestinal spasm, disorders of sleep, headache, sexual frigidity with or without impotence.

It appears that the disorder fixes in the individual upon the point of least resistance. In one inclined to be sad the neurosis will prove melancholic, in the choleric the patient will be irritable, in the anxious there will be trepidation. The apathetic will become sad or depressed, the excitable agitated. In brief, the condition of nervous depression exaggerates all abnormal or morbid traits or tendencies of the individual's character.

The actual lesion, if such exists, is unknown as autopsies, microscopical examinations nor urinary analyses shed light upon the na-

ture of neurasthenia. A cellular disturbance doubtless exists, for it is a physical, a material affection of the nervous system; not purely imaginary or fictitious. It may be exaggerated by autosuggestion.

Neurasthenia in brief, declares Hartenberg, is a state of simple depression of the nervous system, the exciting causes of which are extremely numerous and varied. They belong to all domains, physical, emotional and intellectual. Infectious diseases, such as influenza, typhoid, malaria, tuberculosis, syphilis and the various intoxications. Organic affections such as arteriosclerosis, diabetes, gout. Visceral affections, including prostatitis, uterine affections in women. Organic diseases of the nervous system, general paralysis, tabes, dementia praecox, paralysis agitans. In critical periods of human evolution, such as in puberty, growth, menopause and presenility.

THE USE OF CAMPHOR IN PNEUMONIA

Concerning serum or vaccine therapy for pneumonia, it would seem that as yet we have not found a specific, notwithstanding the investigations of such eminent authorities as Roemer, Rosenow, Flexner and Cole. In those cases reported treated with antipneumococcic serums and vaccines, little difference in the clinical picture is to be noted when compared with the expectant method. They end by crisis while statistics do not show an appreciable lowered mortality.

Chemotherapy has, however, shown some remarkable results with camphor. A. Seibert, of New York, reported in the *Muenchener Medizinische Wochenschrift*, No. 36, 1909, a series of cases of lobar pneumonia, treated by hypodermic injections of large doses of camphor oil. Again in the *New York Medical Record*, April 20, 1912, cases were added to the number first reported making the total of thirty seven with but one fatal issue. Dr. Seibert's results have been confirmed by experiments made by Drs. Henzel and Rueck, of New York, as well as Böehnke, of Germany, who reported in the *Berlin Klinische Wochenschrift*, May 5, 1913. Böehnke experimented on white mice, into which camphor was first injected subcutaneously; to be followed by a fatal dose of pneumococci in the

peritoneum. The controls all died in from twenty four to thirty six hours; six out of the ten of the animals receiving the camphor lived.

Dr. William Cruikshank, New York State Journal of Medicine, February 14, 1914, reports six cases treated by camphor with favorable results without crisis.

Dr. Joseph Bainton referred while discussing Dr. Cruikshank's paper to between seventy five and one hundred cases in which the camphor oil had been used. "Excepting in cases of delirium tremens and alcoholic wet brain, I do not recall a single death when treatment was begun before the third day; the temperature nearly always sinking to normal gradually instead of by crisis."

Iverson, Vratsch, January, 1912, reports treating eighty two cases of lobar pneumonia at the Oberlof Hospital for Men, in St. Petersburg, with camphor injections, with seventy two recoveries and ten deaths, while of ninety cases treated without camphor, sixty two recovered and eighteen died.

Otto J. Seibert, Lancet-Clinic, April 11, 1914, reports his experience with camphor in five cases of pneumonia. All five were typical cases of lobar pneumonia with chill, temperature 104° F., pulse 120 to 130, consolidation, profuse bloody expectoration. In all there was an immediate effect produced by the camphor, with gradual reduction of temperature until in all cases, excepting one, clinical conditions were practically normal on the third or fourth day after the first injection. In no case did the pulse exceed 96, when it had been between 120 and 140. There was no toxic or over-stimulative action. In one case 270 grains of camphor were injected in twenty four hours.

The dose was 10 cc. to the 100 pound body weight of a 30 per cent. camphorated oil solution repeated every eight or twelve hours according to the severity of infection. The site of injection was the outer side of thigh, beginning hip high up and alternating thighs.

Dr. Russell Fowler reports eight cases of postoperative pneumonia and declares that with the possible exception of camphor in large doses hypodermically, no remedy will affect the condition. The eight cases all made favorable recoveries. He now uses camphor oil as a

prophylactic an hour before operation, with apparently very good results.

It must appear, therefore, from the reports cited that camphor oil is the most successful treatment for pneumonia. In fact is as specific as quinine, mercury, or salvarsan. It is not claimed that its action is bactericidal to the infecting organism; rather inhibitory, perhaps. Whatever its action may be, certainly the results are astonishingly favorable.

AUTOINTOXICATION

Autointoxication, poisoning by uneliminated toxin generated within the body; endo rather than exogenous toxins. In no sense, declares Adami, can products of the digestion of foodstuffs, whether by normal ferments or the action of bacteria be regarded as giving rise to autointoxication; for the products, if they be toxic, are derived from without, and not from the body tissues. The whole process of digestion is the conversion of food substances into a soluble or fluid state; it is certain that with the great absorption of fluid that goes on in the colon there is also absorption of a large amount of foodstuff. Further, the process of drying and concentration, which takes place in the large intestine, is inhibitory to the growth and activity of bacteria and lessens putrefaction. While one third to one quarter of the solids of the healthy stool is composed of bacteria, it is a striking fact that nearly all of these are dead. "It is an utter fallacy to picture the contents of the colon, as I fancy most of us are apt to do, as undergoing acute putrefaction."

Granting that bacteria may act on the foodstuffs so as to produce toxic bodies, such as indol and betaiminoazoly1-ethylamin, neither of these bodies is absorbed readily from any portion of the intestine, and it is only when the mucosa is damaged that they can enter into the circulation in amounts sufficient to cause symptoms. The exotoxins of the bacteria themselves have been accused, but most bacteria in the intestines are not possessed of exotoxins, and, secondly, symptoms of absorption of bacterial exotoxins rather simulate anaphylaxis.

Anders, in his Practice, 1913, declares that "the ingestion of proteins in excessive amounts is doubtless the most potent causative factor in the etiology of intestinal autointoxication. Fat and sugar taken in amounts above the physiologic capacity of the organism are also, he declares, responsible for this condition in certain cases, and the same may be true of certain abnormalities of metabolism. It is the putrefactive products not oxidized to indican that constitute the toxins."

All of which would indicate that autointoxication is not as yet correctly understood.

HAND SHAKING

We wrote some years since that doorknobs should be abolished, because they are the means of transmitting certain diseases, more especially skin diseases, through the promiscuous handling by those whose hands are not above suspicion.

That certain skin diseases are thus communicable is doubtless true, but worse still is the possibility of thus transmitting other and more dangerous diseases, such as tuberculosis, diphtheria, scarlet fever, and other pathological conditions whose cause is due to a germ or bacillus. If there is danger in the doorknob, what may be feared from handshaking? Men—and women, for that matter—are not over particular in handling their handkerchiefs, which may become infected with numerous toxic bacilli from the nose and mouth, as well as from contact with infected areas of the skin. A little observation will surprise many of us in a knowledge of to what uses the handkerchief may be put. In handling this useful article the hands become infected, the infection being communicated to the first or numerous friends and acquaintances in the antiquated hearty handshake. Thus a whole train of infectious diseases may be, and doubtless are, communicated from one to another and passed along to others by the second, third, and so on.

All hands are not dangerous through contact, but unquestionably many are. When it is borne in mind that thousands suffering from tuberculosis are constantly using their handkerchiefs, infecting them with the tubercle bacilli, many of which must remain on their hands,

go about shaking hands with their friends, who being perhaps solicitous concerning their state of health accompany the inquiry with a friendly handshake upon meeting and upon saying adieu, the danger of handshaking will be appreciated. This kindness is well meant, and certain it is that the handclasp were it refused would be a sore disappointment, even considered an act unwarranted and unfriendly by the affected.

Examinations of the accumulation under the fingernails of persons have frequently been made by bacteriologists, in one instance thirteen different kinds of bacteria found; five of these thirteen were pathogenic, the tubercle bacilli, bacillus of diphtheria, influenza, staphylococcus, streptococcus; why not the diplococci, tetanus, comma bacillus, dysenterial, bubonic plague, typhoid, anthrax, pneumococcus and ozena, as well as numerous bacilli of skin diseases, erysipelas, seborrhea, barber's itch, scabies, etc.

It would prove a tedious task, to educate people to the danger of handshaking, but like many other antiquated and dangerous customs, it should not be indulged in.

DEFECTS IN SPEECH

In the course of a study of what the general practitioner can do to ward off and cure defects in speech, Froschels emphasizes that much can be done in preventing the development of stuttering. When a child hesitates and repeats the last syllable over and over, it is because its little brain cannot keep up with its speech: it keeps repeating the last syllable until it can think of the proper word to go on with. This is not pathologic, but it becomes so if the child's attention is drawn to the habit. The family and friends must have impressed on them with great emphasis that it is absolutely necessary to refrain from attracting the attention of the child to this slight defect in its speech. It must not be corrected, or forced to repeat the word over again, and, above all, no impatience should be manifested. If the child's attention is once attracted to this simple repeating of the last syllable the trouble becomes confirmed and we have the severe disturbance of stuttering which may brand the individual through life and make him hold aloof from his kind.

PRESCRIBING BY WIRELESS

Sick patients have been prescribed for by wireless. The London *Daily Mail* tells of the interchange of messages between the steamship *Maheno*, bound from Sydney, Australia, to New Zealand, and the *Wimmera*, going in the opposite direction. The *Wimmera* had no physician aboard, and its captain, who was ill, described his symptoms in detail. A doctor on the *Maheno* diagnosed the case and flashed back the prescription.

GRAPE SEED OIL

Oil from grape seeds has become a byproduct of the wine industry in portions of France, Italy, and Wurtemberg. The Bulletin of the American Association of Commerce and Trade, published in Berlin, says that the first pressing, obtained cold, is of edible oil; that extracted by pressing and heating is dark and bitter, and is used for lighting purposes and in the making of soap. It is described as a good substitute for the expensive oils used in the textile industry. About 2.2 pounds of oil may be expressed from the seeds of grapes yielding 26.42 gallons of wine.

DR. WILLIAM H. PARK, DEAN OF THE UNIVERSITY
AND BELLEVUE HOSPITAL MEDICAL COLLEGE

By unanimous selection, Dr. William Hallock Park was chosen dean of the University and Bellevue Hospital Medical College by the council of the New York University recently. He takes the place of Egbert Le Fevre, who died on March 30, 1914.

Dr. Park was born in New York, December 30, 1863. He was graduated from the College of the City of New York in 1883, from the College of Physicians and Surgeons in 1886 and for one year attended the University of Vienna. In 1910 Queen's University conferred on him the degree of Doctor of Laws.

Since 1897 he has been professor of bacteriology and hygiene at the college of which he is now dean, has been medical examiner in hygiene of the State Department of Education since 1909, and for fourteen years has been a director of the New York Health Department research laboratory.

DIGEST OF CURRENT MEDICAL LITERATURE

Quinine and Urea Hydrochloride in Nose and Throat Surgery.—Dr. Arthur J. Herzig, in the *New York Medical Journal*, March 14, 1914, says: "The choice of an anesthetic to be used in the adult has always been a subject of great importance to the rhinologist. The anesthetic which would remove the danger of hemorrhage and toxicity and produce a proper anesthesia is the one sought for. Urea and quinine hydrochloride fulfils a long felt want, being nontoxic and antihemorrhagic and at the same time a perfect anesthetic, while the use of cocaine and its allied salts has often been fraught with danger to the patient.

"The technic I pursue in adenoid and tonsil resection is as follows: I use a four per cent. solution of urea and quinine, mixed with boric acid, to prevent fermentation, in the proportion of one to 100, after instructions to clear bowels the day previous to operation and no meal four hours before operation. I now have my patient, if a child, prepared in a morning dressing; if an adult, prepared simply with sterile towels and gown. I inject ten minims into the anterior pillar of the fauces, high up, where one would incise a peritonsillar abscess, and ten minims, low down, in the posterior pillar of the fauces. This latter part of the injection cannot always be done where there are very large tonsils present. In fact one half of my cases only have one injection made, namely, in the anterior pillar. No pain is experienced in the single injection method. For the adenoids I use a fifty per cent. solution prepared the same way, but only swab this on with a postnasal applicator. The anesthesia here is nearly as complete as that of the injection. I now have my patient wait from ten to fifteen minutes. I then proceed to perform my tonsillar resection and removal of adenoid tissue, as if any other anesthetic had been used.

"My experience extending over a period of over four years in tonsil and adenoid surgery with urea and quinine, is as follows:

"I have operated in 390 cases in hospital and private practice. Of this number 150 were adenoids alone and 240 were adenoids with enlarged tonsils. Of these 240 over one third were in adults over the age of sixteen years. Thirty three cases of fibrous tonsil were met with. I also resected the lower half of the uvula in six cases. In these cases the injection was made at the junction of the uvula and soft palate. I cauterized four cases of enlarged tonsils in the

adult, owing to refusal of removal. All of these patients had no apparent pain, and in older children and adults where one could get an intelligent answer, this was plainly told.

"My patients suffered mostly from gagging. This may be overcome in adults by rapid and regular breathing. In none of these cases was there any hemorrhage five minutes after the operation; furthermore, no postoperative hemorrhage occurred at any time. The patients complained of soreness of the throat after operation, although upon testing the fauces I found anesthesia present, which lasted from two to eight days. There need be no fear of edema spreading to the glottis, as this never occurs. The appearance of the throat twenty four to forty eight hours after operation, may be as follows: A bruised condition of the anterior pillar of the fauces, also edema, which spreads from one anterior pillar to the other, involving the soft palate and uvula; this disappears usually in from three to ten days. While it lasts, the patient's throat is in a state of partial anesthesia. I tell my patients to suck ice, as this hastens the absorption of the fluid and gives marked comfort.

"Sometimes a membrane forms at the site of the injection. This disappears in two to ten days of its own accord, and is due to the urea. The quinine is the anesthetic and the urea, by means of its irritant properties, causes the edema, which acts as a hemostatic. Unless a physician is acquainted with the appearance of this pseudo-membrane and edema after operation, he may feel as though he were dealing with a case of infection, or even diphtheria (without a culture being taken), on the appearance of the membrane, which has a tendency to spread upon the soft palate.

"I tell my patient to use a spray or gargle of equal parts of hydrogen peroxide and tepid water, every three hours; also to abstain from any solid food for thirty six hours after operation. A cathartic is usually given. In case the patient suffers too much soreness (for the postoperative anesthesia only involves the pillars of the fauces and tonsillar area), I prescribe sedative or antiseptic tablets, to be dissolved on the tongue every hour or so; also cold compresses externally.

"In conclusion, I wish to emphasize the advantages of urea and quinine hydrochloride over cocaine, in that it is nontoxic and hemostatic. If the use of this local anesthetic proves as efficacious in my readers' hands as in mine, my purpose will have been fulfilled.

The Effect of Digitalis on the Blood Pressure and Pulse Pressure in the Presence of Cardiac Decompensation.—Charles H. Lawrence, *Boston Med. & Surg. Journal*, January, 1914, states that the ma-

jority of authorities advise against the use of digitalis in those conditions in which an increase of circulatory tension might give rise to unfortunate results. In this category would come the hypertension of arteriosclerosis and chronic nephritis. As a result of this teaching, the author says, digitalis is not administered in many cases of cardiac decompensation because there is a coexisting arteriosclerosis, hypertension, or angina pectoris.

Contrary to this view of the subject the writer mentions the observations and conclusions of Price and MacKenzie, who found that digitalis rarely causes a rise in blood pressure.

The author reports 26 cases of cardiac decompensation to whom was administered digitalis. Observations were recorded on the blood pressure during the course of treatment.

The digitalis was administered in the form of the drug known under the name of "Digipuratum" in all but a few cases. A table accompanies the article giving the blood pressure before and after the administration of the drug.

The results are summarized as follows:

Of the 26 cases recorded, 5, or 19 per cent., showed a rise in systolic pressure, the greatest increase noted being 30 mm.

Of the group of cases showing a rise in systolic pressure none showed a diuresis.

Four cases, or 15 per cent., showed no change in systolic pressure. Of these, none showed a diuresis.

Seventeen cases, or 66 per cent., showed a fall in systolic pressure either during or immediately after the administration of digitalis preparations. Of these, 88 per cent. showed a diuresis.

Only one case showed a rise in diastolic pressure. There was no diuresis.

Four cases, or 15 per cent., showed no change in diastolic pressure. Of these, 75 per cent. showed a diuresis.

Twenty cases, or 74 per cent., showed a fall in diastolic pressure, 63 per cent. of these showing a diuresis.

Twenty cases, or 45 per cent., showed an increased pulse pressure, a diuresis occurring in 50 per cent. of this group.

Three cases, or 11 per cent., showed no change in pulse pressure. A diuresis occurred in every case in this group.

Eleven cases, or 42 per cent., showed decreased pulse pressure.

The conclusions drawn by the author from his observations are:

1. The effects of various drugs on the blood pressure, as determined by experiments on animals, do not furnish reliable criteria for the administration of such drugs to man, since the effect may be quite different in the latter.

2. The pressure raising effect of digitalis noted in animals and in healthy individuals does not occur, as a rule, when the drug is administered to individuals suffering from cardiac decompensation.

3. The cause of the cardiac decompensation does not appear to affect the action of the drug.

4. Digitalis preparations may be safely administered to patients suffering from arteriosclerosis, angina pectoris, or nephritic hypertension, if cardiac decompensation is present; under such conditions it rarely causes a rise in blood pressure.

Of the 26 cases studied, 18 were discharged relieved. Of these, 76 per cent. showed a fall in systolic, and 86 per cent. showed a fall in diastolic pressure during or immediately after the administration of digitalis. It appears, therefore, that such a fall is entirely compatible with improvement in the patient's condition. Two cases were discharged unrelieved, and six cases died. No conclusions can be drawn from this last small group of observations, especially as the changes in blood pressure noted were about evenly divided as to increased or diminished readings.

Treatment of Progressive General Paralysis.—A. Pilcz, *Presse Médicale*, February 4, 1914, praises von Wagner's method of treating paresis by the artificial production of fever and leucocytosis. Pilcz injects on alternate days 0.02 gram of mercury succinimide and ascending amounts of Koch's old tuberculin, beginning with 0.0005 to 0.01. The temperature is noted every three hours. When there is no reaction to the tuberculin, the dose is doubled; if the temperature rises to 37.5° C., a dose one half larger than that preceding is given; if to 38° C., a dose one quarter larger, and if higher than this, the same dose is repeated. A one gram dose is thus finally attained. The least tendency to constipation must be combated during the treatment, and alcohol prohibited. If high fever develops, rest in bed and an ice bag to the head are ordered. Of sixty eight paretics treated in a sanatorium with these injections, 26.68 per cent. were so greatly improved that they resumed their former occupations, 10.44 per cent. were enabled to live at home without special surveillance, 23.2 per cent. showed an arrest in the progress of the disease, and the remaining 39.44 per cent. were not influenced. In a number of patients repetition of the treatment upon recurrence of the symptoms brought renewed benefit. Where the system becomes immune to tuberculin, or in tuberculous cases, injections of sodium nucleinate or of polyvalent staphylococcic or streptococcic vaccine may be substituted. Pilcz commends the mercury-tuberculin treat-

ment to the general practitioner, who sees paresis in its earliest stages.

Subcutaneous Injections of Emetine in Phthisis.—While Raeburn, *British Medical Journal*, March 28, 1914, does not consider that emetine has any effect on the tubercle bacillus he believes it is a valuable addition to our weapons for reducing congestive conditions in the lungs and that, therefore, it is both a preventive and curative agent in tuberculosis. He uses ampoules, which contain $\frac{1}{2}$ grain of emetine in 15 minims of distilled water. By diluting this in four parts of water, 1 minim equals 0.04 cg., and Raeburn has come to consider 4 minims of this dilution a suitable dose to give when the object is to control expectoration or lessen congestion.

Raeburn confined himself to cases of hemorrhage. Some of the cases in which he used it had only slight and occasional hemorrhage but copious expectoration and it was observed that not only did all traces of blood disappear from the sputum, but that the sputum itself decreased or ceased. This observation induced Raeburn to employ the drug in some cases of copious expectoration alone and the results have been sufficiently striking to justify his mentioning them to the profession in the hope that others will be induced to further investigate the properties of emetine in relation to its effects on congestive and inflammatory conditions of the lungs. He has now used it in over forty cases, and has endeavored to note its effect both on hemorrhage and on expectoration.

Auricular Fibrillation: Pulse Deficit, Digitalis and Blood Pressure.—W. B. James and T. S. Hart, *American Journal of the Medical Sciences*, January, 1914, state that recent studies with the electrocardiograph on animals under experimental conditions and on the human subject have permitted the separation of a group of cardiac irregularities known as auricular fibrillation, which is of great clinical importance. A clinical study of a number of cases of auricular fibrillation has prompted them to present the following points, which their experience has demonstrated to be of practical importance: 1. In auricular fibrillation palpation of the radial pulse is a misleading guide to the condition of the circulation. 2. The pulse deficit is a simple and useful means of following the progress of such fibrillation, and of confirming observations on the value of various therapeutic measures, including the activity of various drugs. 3. The relative deficit is of value in the diagnosis of suspected cases of fibrillation. 4. The ordinary method of estimating blood pressure is misleading in cases of fibrillation; it may be replaced with advan-

tage by the estimation of the average systolic blood pressure, which gives an approximate measure of the real systolic blood pressure.

5. The administration of digitalis elevates blood pressure in cases of fibrillation.

Intestinal Stasis.—A. E. Rockey, *Surgery, Gynecology and Obstetrics*, December, 1913, says that the water absorbing function of the colon is better known to surgeons since the use of Murphy's drop method of proctodolysis. Dryness of the colonic contents may be avoided by drinking large quantities of water. Liquid paraffin, or, as it is known in our pharmacopeia, liquid petrolatum, passes through the intestinal canal comparatively unchanged, and is the most efficient lubricant for the colon that can be given by the mouth. In practice it is found that a dose of from one to three ounces, given preferably in a glass of cold water at night, is sufficient to overcome many obstinate cases of constipation. As mechanical causes of constipation are not influenced by paraffin, it may be necessary to continue it indefinitely, and it is far better to give a daily dose, just sufficient to produce a regular movement than to cause a spasmodic movement by the use of a large dose for the purpose of clearing accumulations. When these measures fail to relieve autointoxication, even though constipation itself is relieved, Lane's short circuit operation should be done. This, the writer considers, one of the most important procedures devised during recent years.

The Cocaine Habit.—The *Sun* for March 1st published an interview with a well known clergyman who is interested in putting a stop, if possible, to the cocaine habit by Federal legislation. He was asked where he supposed the habit to have taken rise, and replied that he believed it to have come from the West Indies. It is more likely that cocaine addiction in New York City began with the use of certain catarrh snuffs, the sale of which was enormous up to the year 1908—we believe—when the New York Board of Health put a stop to their sale and consequently to their manufacture. One of these snuffs sold largely in the British colonies, including Canada, and indeed may still command an immense business in those countries as well as in the States where there is no prohibitive legislation. Coincident with the suppression of the snuffs in New York we begin to hear of the sale of the pure drug, taken by the habitué, it is significant to note, in the same way.

The fact that heroine is also taken by sniffing, probably through imitation, has led to the curious misstatement made in at least two

largely circulated New York papers recently, that this comparatively newly isolated alkaloid of opium is a derivative of cocaine.—*New York Medical Journal*, March 7, 1914.

A Study of the Market Butter of Boston.—Rosenau, Frost and Bryant, *Journal of Medical Research*, March, 1914, give an interesting report concerning twenty five samples of butter studied by them. The various methods employed are given and then a summary and conclusions. The average number of bacteria present in one grain of butter was five million seven hundred thousand. The number increases with age, from 85.8 per cent. at the end of two weeks to 95.6 per cent. in six weeks. Consequently, the number of bacteria may be an index of the age of butter. *Bacillus coli* was found in only six of the twenty five samples and then only in small numbers. *Streptococci* were found in fourteen of the twenty five. Although *Bacillus Welchii* (*aerogenes capsulatus*) is frequently found in milk, it was not present in any of the samples of butter. Tubercle bacilli were demonstrated in two of twenty one samples examined for this organism, a percentage of nine and one half of the samples examined, which corresponds with the percentage in milk samples similarly infected. On account of the frequency with which butter may contain tubercle bacilli, and other pathogenic bacteria, the authors recommend the pasturization of cream intended for butter.

Effect of Tartrates on the Human Kidney.—W. E. Post, *Boston Medical and Surgical Journal*, February 19, 1914, gave potassium and sodium tartrate in doses of from one to six drams, to seven hospital patients, and refers to two other patients with nephritis of pregnancy who were given cream of tartar or Rochelle salt regularly. In one the condition cleared up before the termination of pregnancy, the other showed marked improvement. These cases are cited, he says, not to describe the plan of treatment in nephritis, or even to give evidence of any benefit from tartrates, but to show that administration of tartrates, even in nephritis, is not inconsistent with good clinical results. They give no evidence that potassium and sodium tartrate in ordinary doses by the mouth in the human subject will cause albuminuria or cylindruria. There is no evidence that tartrates aggravate an existing nephritis. Acidity of the urine, indicated by the hydrogen ion concentration, was as a rule less after the administration of tartrates. These findings are entirely consistent with those of Underhill, Wells, and Goldschmidt regarding experimental tartrate nephritis.

Syphilis.—In summing up the advances in the diagnosis of syphilis, Gradwohl, in the *St. Louis Medical Fortnightly*, says, "that as a result of the discovery of the Schaudinn spirillum and the use of the dark field attachment we can place the patient in the best position to obtain the best treatment by early institution of specific remedies. Secondly, we have by the successful cultivation of the organism paved the way perhaps for perfection of serum treatment which may give even better results than our chemotherapy. Thirdly, by Wassermann work we have obtained a means of accurate diagnosis of 'mysterious' maladies about which we were formerly very much at sea. Thus the last ten years have seen new chapters written about this disease beside which all previous researches have paled into insignificance. What the future may hold forth we are not prepared to say. For the practical mind, however, instead of wasting efforts in prophetic utterances, let us hold well in hand the most important facts that the bewildering mass of discoveries of Metchnikoff, Schaudinn, Hoffmann, Noguchi, Ehrlich, Wassermann, Neisser and Bruck have given us in the eventful past decade."

Emetine Treatment of Amebic Dysentery.—C. Dopter, *Paris Medical*, March 14, 1914, states that he continues emetine injections four or five days after the first formed stool. Doses of even one and one third or one and one half grain (0.08 or 0.1 gram) may be injected daily in apparently severe cases. Only exceptionally is there any difficulty after these doses. In spite of such treatment recurrence may be noted eight or even ten days after apparent recovery, especially in the tropics. Dopter accordingly approves of giving repeated courses of emetine injections in order, presumably, to kill the young amebas as they emerge from the encysted, refractory stage. Examination of the stools will not always show these cysts where they are present, and it is therefore best, for the present, to follow Chauffard's plan, which consists in giving a second series of injections two weeks after the first, then a third after three weeks, and even a fourth, after a like interval. In cases of long standing, a series of injections should be given every month on five or six successive days.

Emetine in Pulmonary Tuberculosis.—James A. Raeburn, *British Medical Journal*, March 28, 1914, was prompted to try the subcutaneous injections of emetine in pulmonary tuberculosis as a result of observations of Flandrin and Joltrain, who reported that its use checked many cases of hemoptysis. Raeburn confirmed their observations: he goes farther and finds that emetine seems to have consid-

erable power of checking bronchitis, often causing its complete disappearance. It seems not to have any influence on the presence of bacilli in the sputum, or on the tuberculin reaction, its effect being solely on the bronchial inflammation. When there is a weak heart the drug should not be used, and in such cases its use has been found to be without beneficial influence on the bronchitis. He uses about 1.5 mgm. for the control of expectoration or to lessen the congestion of the bronchi. He has observed no ill effects with these doses.

Tobacco Smoking and Mental Efficiency.—Dr. Arthur Dermont Bush, *New York Medical Journal*, March 14, 1914, states in a summary:

1. A series of 120 tests on each of fifteen men, in several different psychic fields, show that tobacco smoking produces a 10.5 per cent. decrease in mental efficiency.

2. The greatest actual loss was in the field of imagery, twenty two per cent.

3. The three greatest losses were in the fields of imagery, perception and association.

4. The greatest loss, in these experiments, occurred with cigarettes.

5. Nicotine was found in the distillates of all tobaccos tested.

6. Nicotine was not found in the smoke of any tobacco, except that of cigarettes, and then only in traces.

7. Pyridine was found in the smoke of all tobaccos tested.

8. Pyridine seems to be the principal toxic factor in the smoke.

Treatment of Hemorrhagic Metropathies with Thyroid Substance.—E. Sehrt, *Münchener Medizinische Wochenschrift*, February 10, 1914, has treated twenty five cases of pure hemorrhagic affections of the uterus with iodothyryn. In all, after a shorter or longer period, a decided improvement was observed. Characteristic complaints, such as palpitation of the heart, headache, etc., were occasionally improved after the first few doses. Leucopenia, which accompanies this condition, disappears after a few weeks of medication. Hemorrhages cease or become normal even after medication has been discontinued, proving the causal relations of thyroid insufficiency and hemorrhagic metropathies.

Results with Mesothorium in Cancer.—A. Doederlein and E. von Seuffert, *Münchener Medizinische Wochenschrift*, February 10, 1914, report their results with mesothorium in 180 cases of carci-

noma. Of 153 patients observed during the course of the last year only twenty four have died. One fatal case may perhaps be attributed to the mesothorium treatment. In thirty one cases complete clinical cure was effected, of which twelve were considered surgically inoperable. Ninety eight are still under treatment or under observation. In carcinoma of parts of the body other than the female genitalia, the results have not been as good. There are no hard and fast rules that can be followed in the administration of this remedy. As a rule moderate doses of 100 to 200 mg. were employed. The capsules containing mesothorium were never allowed to remain more than two days. This prevented any excessive injury to the normal tissues. The pains or general disorders appearing during treatment are due to the lesion and not to the remedy.

Laroson Milk in Feeding Sick Babies.—W. Wegener, *Münchener Med. Wochenschrift*, February 17, 1914, considers that larosan milk is an excellent substitute for albumin milk. It is considerably cheaper and is much more easily prepared. It has also proved of decided advantage in intestinal disorders even of older children. It is prepared as follows: One sixth of a litre of milk is taken and stirred with twenty grams of larosan. Then a half litre is added and boiled for ten minutes and stirred continuously. It is then filtered through a fine sieve, and an equal quantity of water, with a small amount of sugar added.

Serodiagnosis of Infectious Diseases.—Ernst Voelkel, *Münchener Med. Wochenschrift*, February 17, 1914 has extended the principle underlying the Abderhalden diagnosis test to the diagnosis of bacterial infections. He prepared substrates of typhoid, diphtheria, and anthrax bacilli from agar cultures. He obtained trypanosome proteid from the blood of an infected guinea pig by means of centrifugation. He also carried out experiments with spirochetes, using as a control horse serum, since he was unable to separate the organisms from their culture media. His results with the typhoid bacillus were very favorable, also with serum from human beings infected with syphilis. In the case of all other bacilli the experiments did not turn out favorably.

Adrenaline Sensitiveness in Dementia Precox.—W. Schmidt, *Münchener Med. Wochenschrift*, February 17, 1914, has found that cases of dementia precox, especially the catatonic and hebephrenic forms, are not sensitive to injections of adrenaline, i.e., the blood pressure does not seem to be affected. Normal individuals as well as

those affected with other psychoses react to the subcutaneous administration of adrenaline by marked increase of blood pressure.

Erysipelas and Diabetes.—A. Welz, *Münchener Med. Wochenschrift*, February 24, 1914, reports two cases of erysipelas followed by a severe diabetes, and discusses the possibility that these cases are an example of an exogenous cause of this constitutional disturbance, brought about by toxic changes in the hereditarily weakened islands of Langerhans.

Significance and Origin of Protective Ferments.—Abderhalden, *Deutsche Med. Wochenschrift*, February 5, 1914, is of opinion that the protective ferments arise from the organ cells and not, as formerly supposed, from leucocytes. These ferments appear in the blood after excretion from the organ cells. This can be demonstrated after the parenteral injection of foreign proteid. It is quite possible that certain cells may excrete their ferments into the blood stream under certain conditions, even without the substrate having first to appear in the blood. It requires further investigations to determine whether the presence of bacteria brings about the development of specific ferments and in what organ they are formed. The conclusive proof that the ferments arise in the organs is furnished by the absence of ferments in castrated dogs after the parenteral injection of testicular extract.

Roasted Sawdust as a Wound Dressing.—It is claimed that the sawdust of hard wood, such as boxwood or oak when partially charred or roasted in a crucible, then finely sifted, forms a serviceable antiseptic and absorbent dressing for wounds, having all the valuable properties of charcoal, yet retaining the high absorbent properties of sawdust. It is suitable as a basis for the application of many remedies to wounds or discharging surfaces.

Pineal Gland in the Treatment of Defective Children.—W. N. Berkeley, *Medical Record*, March 21, 1914, quotes impartial and exactly scientific tests of pineal gland by H. H. Goddard, and expresses the conviction that it is a remedy of great value in many cases of retarded intelligence in children. Cases showing improvement have so far been different, no similarity of facies, cutaneous nutrition or mental condition being notable, and the search for a definite type of hypopinealism or apinealism has also been elusive.

THERAPEUTIC PROGRESS

Local Anesthesia with Pantopon and Cocaine.—P. I. Buchman, *Roussky Vrach*, October 26, 1913, employed pantopon as a general soporific and cocaine as a local anesthetic in a large number of operations, both major and minor. Two hours before operation the patient received hypodermically 1.1 c.c. of a two per cent. solution of pantopon, and immediately before operation local infiltration or nerve blocking, 2 to 12 c.c. of a warm one half per cent. solution of cocaine, with one or two drops of one to 1,000 adrenaline to each 10 c.c. of the solution. Comparing pantopon with morphine, the author finds that while the pantopon is slower in action, the effect lasts longer. Pantopon exerts a better psychic effect, diminishes intestinal peristalsis to a greater degree, and does not cause prolonged suppression of urine, as morphine does.

Paracodeine.—W. Dahl, *Deutsche Medizinische Wochenschrift*, says that paracodeine fills a gap between the codeine and morphine groups. As a result of experience the author asserts that when paracodeine is given, like codeine, in small doses, it often acts with more intensity than codeine. Compared with codeine, the new remedy has a greater sedative power. For certain uses this remedy will advantageously replace even morphine. No unpleasant after effects any more than with the codeine preparations have been observed. The new preparation is a hydrated codeine, soluble in warm water. The dose generally used was from 0.025 to 0.03 gram.

Action of Cumarin.—M. R. Bonsman, *Deutsche Medizinische Wochenschrift*, January 1, 1914, has used cumarin in thirty cases and has come to the conclusion that its use intravenously in doses of 0.0005 gram to 0.001 every second day until about 0.0065 gram has been given has a very good effect on the heart and diuresis. It cannot replace digitalis, although occasionally it is efficacious where digitalis has failed. It is not followed by untoward symptoms, has no cumulative action, and does not disturb sleep.

Emetin Treatment of Dysentery.—M. Mayer, *Münchener Medizinische Wochenschrift*, February 3, 1914, reports a case of clinically severe dysentery which had lasted for several weeks. Microscopically only *Lamblia intestinalis* and spirochetes were found in large numbers. Injection of emetin hydrochloride brought about immediate cure. In fact, the first injection of 0.05 gram sufficed to bring about a clinical cure.

Treatment of Hay Fever with Calcium Chloride.—Rudolf Hoffman, *New York Medical Journal*, March 14, 1914, denies the view of Emmerich and Loew that protracted use of calcium chloride will cure hay fever, for the patients are not free from attacks after the drug is withdrawn. It is doubtful if it can be given without injurious effects for long periods of time.

Rapid Healing of Sore Nipples.—Neubauer, *Deutsche Medizinische Wochenschrift*, December 4, 1913, found that of all means to cure this condition the most rapid was a ten per cent. euguform salve (condensation product of guaiacol and formaldehyde).

Treatment of Obstipation with Istizin.—K. Klare, *Deutsche Medizinische Wochenschrift*, February 26, 1914, reports his results with istizin and finds it an excellent laxative, its mild and lasting action rendering it very efficient.

Veratrum Viridum.—The most efficacious remedy in acute mania is veratrum viridum. Under its influence feverish sufferers pass into a state of quiet rest. Norwood's tincture should always be used, because of its constant strength. (*Jour. Med. Soc. of N. J.*)

Arthigon.—R. Frühwald, *Medizinische Klinik*, November 2, 1913, found that 0.04 to 0.05 gram arthigon injected intravenously into women having gonorrhea produced in the majority of cases a reaction, of at least 1.3°C. rise in temperature, while women not having gonorrhea showed no reaction. The reaction must be considered specific, and made use of together with microscopical findings. Reaction is no doubt due to the presence of gonococci, not to a previously healed gonorrheal infection. As repeated injections compromise the reaction, it is to be considered positive with the first injections only. It is possible that the reaction will achieve the healing of the infection in women.

Calcium Salts.—R. Emmerich and O. Loew lay a good deal of stress upon the importance of lime salts in the finer mechanism of both animal and plant life (*Berl. klin. Woch.*, June 30, 1913). It seems that lime is essential, particularly for the proper function of the cell nuclei, and where the lime is removed by such salts as potassium oxalate and sodium fluoride, cell death will soon follow. Clinically, the lime salts will greatly aid digestion, and for this purpose 1 gram calcium chloride may be given three times a day with the meals. Animal experiments show that very large doses are well tolerated. The salt is also excellent as a tonic in various neurasthenic conditions and will often initiate a marked gain in weight when food and other tonics fail.

Healing of Skin Cancer with Salicylic Acid.—Weinbrenner (*Münchener Medizinische Wochenschrift*, January 20, 1914) professes to have cured skin carcinomas by application of powdered salicylic acid, covered with a zinc plaster cotton bandage of Beyersdorf. At the most dependent point he placed absorbent cotton for drainage, between the skin and plaster. At first the treatment consisted of daily dressing, changing bandage and removal of the grayish white crust; later this was done every second day and then at more distant intervals.

Narcophin in Labor.—H. Klaus (*Münchener Medizinische Wochenschrift*, January 27, 1914) asserts that the effective dose was 1 c.c. of a solution containing 0.03 of pure narcophin. Where several doses were employed, an interval of three hours was allowed to elapse between doses. The effect was

quite prompt, occurring after one quarter of an hour. Only in 3.3 per cent. of children born asphyxiated could narcophin be considered the direct cause. Asphyxia occurs more rarely than after pantopon. The afterpains are also decidedly influenced by narcophin, which can be administered in tablet form, each tablet containing 0.015 gram.

Atropine Treatment of Dysmenorrhea.—Josef Novak obtained a history of dysmenorrhea in almost all of his cases of puerperal bradycardia and arrhythmia, a fact which suggested to him that the two conditions might be due to the same cause, and might be amenable to the action of atropine. Most of his patients never returned, but of thirty-eight who were followed up thirty were materially benefited; the result was uncertain in one, and was not good in seven.

Veratrine in Eclampsia.—Haultain, in a paper read before the Edinburgh Obstetrical Society, July, 1913, reports that our knowledge of the pathology of eclampsia is so scanty and imperfect, and necessarily our treatment so inefficient, that anything which offers the slightest hope of mitigating the ravages of this complication of pregnancy must interest the Fellows of this society.

Among its varied manifestations, so far as I have been able to determine from a somewhat large experience of eclampsia, one alone seems to be present in every instance, viz., much increased bloodpressure. This is usually, though not invariably, associated with increase of the pulse rate. That this high vascular tension, whatever its cause may be, has much to do with the actual convulsive seizures I am convinced, and much of the treatment recommended has been on the lines of its reduction. To this, blood letting, thyroid extract, and the nitrates probably owe the little success they have been shown to exercise.

For many years veratrum viride has been used with considerable benefit, and was considered as a specific among some of the older authors. Personally, I have long been favorably disposed toward it and have used it frequently when opportunity offered, with apparently decided success. Unfortunately, however, the only available preparation was the tincture, which in most cases was impossible to exhibit by the mouth on account of the comatose condition of the patient, and when administered hypodermically it gave rise to much local inflammation from its irritating action.

Recently, however, hypodermic preparation of the essential alkaloids containing veratroidine and jervine, under the name of "veratrone," has been introduced.

The paramount action of veratrone is as a vascular depressant, though it is said also to be a spinal sedative—a combined action which seems ideal for the treatment of eclamptic seizures. It is marketed in 1 c.c. sterilized ampules, and on injection intramuscularly gives rise to no local untoward effects. Its action is not only marked, but exceedingly rapid.

Emetine Hydrochloride.—The greatest therapeutic discovery of the year—rather, of last year—was made by Rogers, of Calcutta, who found that emetine hydrochloride would cure amebic dysentery of months' and sometimes years' standing, usually by a daily injection of from $\frac{1}{2}$ to 1 grain, for a week.

MISCELLANY

LES MEDICINS HUMANISTES

A society of this name has been organized in Paris, with the object of uniting physicians who are interested in literature in its relations with biological sciences, to advance in every possible way the revival of the study of Greek and Latin, and to bring about a reaction against neglect of the humanities in all curricula preliminary to the study of medicine. At the meeting of February 23rd, Dr. Berchon, the secretary of the society, gave an extensive resumé of Dr. A. Rose's book, "Medical Greek," which resumé will appear in the journal of the society. In *La Chronique Médicale* of April appeared a review of this book concluding as follows:

Il faudrait lire en entier, et dans le texte même, ce plaidoyer remarquable de M. A. Rose. Une traduction ne saurait en rendre les beautés ni les idées élevées. Je ne craindrai pas d'ajouter qu'après sa lecture, on se sent irrésistiblement poussé vers cette langue si parfaite, si attrayante, vers ces humanités, source de tant de jouissances intellectuelles.

(This book, this remarkable plea of Dr. Rose has to be read all through and in the original. A translation cannot do justice to its beauty and its elevated ideas. I do not hesitate to add, that after having read it one feels irresistibly drawn to that language so perfect, so attractive, to these humanities, the source of so much intellectual enjoyment.)

One of the members, Dr. Menier, of Desazeville, said that Rose's ideas should be accepted among the medical men throughout France. The address of the secretary of the society "Les Médecins Humanistes" is Dr. Berchon, 12 rue Jacob, Paris.

A TEST FOR ALBUMIN IN URINE

A. E. Osmond presents the following test for albumin in the urine. It has been given a thorough trial with all sorts of urines for over a year, and has been checked up by controls made by the nitric acid, the ferrocyanide acetic acid, and the heat tests, and has proved to be equal in delicacy to any of those mentioned and to possess further more certain features which make it superior to them as a routine measure.

Picric acid, 5.00; citric acid, 10.00; sodium chloride, 100.00; distilled water, 1000.00. This gives a solution yellow in color, practically the amber of clear urine; a specific gravity of 1.065 at 15° C., which is much heavier than that of urine, and containing no chemicals which react with anything but albumin.

Technic.—Place two or three c.c. of the reagent in a test tube. Filter the urine until it is perfectly clear. Then allow the urine to float very gently upon the surface of the reagent. Albumin will be shone as a white zone at the line of contact of two amber fluids.

Advantages.—(a) The reagent being isochromic with the urine the white ring of precipitated albumin is shown very clearly. (b) The reagent contains no chemicals which react with any urinary pigments, bile, etc., therefore no color zones are formed which might hide a small amount of albumin. (c) The heavy specific gravity—1065—prevents ready mixing of the urine and the reagent; thus should albumin be present, it is not apt to be diffused and overlooked. (d) The reagent keeps indefinitely; it is always ready for use. (e) If spilled, this reagent does no damage to clothing or fabrics. (f) Boiling produces no change, nor is it dangerous. In cold weather with a urine cloudy from phosphates which the filter does not remove, boiling the reagent first is a distinct advantage, as the hot reagent restores the clearness to the urine as the fluids come in contact. (g) The reagent does not throw down crystals of salts of urea or nitrogenous substances in concentrated urines. (h) In cold weather there may be a feathery deposit of crystals. These settle to the bottom of the bottle and may be removed by filtration or brought back in solution by heat. The activity of the reagent is not affected.—*Lancet-Clinic*, via *Medical Record*, April 18, 1914.

COLOR

That a relation existed between the colors and properties of substances was a belief of great antiquity. A. G. Drury, in *The Medical News*, writes that red represented heat; white, cold. "In smallpox red bed coverings were employed with the view of bringing the pustules to the surface of the body." When the son of Edward II was sick with smallpox, John of Gaddesden, one of the most celebrated physicians of the Middle Ages, directed that the bedroom furniture should be red; and so successful was this treatment that the prince recovered without a mark. In the time of Elizabeth, in cases of smallpox, the value of red curtains, red coverlets, and red globes about the bed was strongly maintained by certain physicians, who said they prevented pitting. For three hundred years these views were ridiculed as rank quackery, until, in 1893, Finsen made known his discoveries as to the influence of light upon various forms of disease. In 1832 Dr. Picton, of New Orleans, noted that during an epidemic of smallpox, certain soldiers confined in dark dungeons had the disease and recovered without suppuration or scarring. Finsen learned that the red or heat rays had no effect on the body except when concentrated enough to burn. By subjecting smallpox patients to red light, he, and others after him, obtained the same results as Dr. Picton's earlier experiments. Finsen, however, discovered that the chemical rays—blue, violet, and ultra violet—very injurious to smallpox patients, were exceedingly useful in some malignant diseases.

The excitement produced by General Pleasanton's "Blue Glass

Theory" will be remembered; as will be the belief that red flannel underwear is the best preventive of rheumatism.

THE NUMBER SEVEN

Sacred and profane histories are full of legends, traditions and adaptations of the number seven. Drury, in *The Medical News*, refers to the Bible as full of references to it; witness the account of the creation; the seven years of plenty and the seven of famine. Jacob served seven years for Rachel; was then betrothed to Leah, and served seven more for Rachel; the seven churches; the seven golden candlesticks. Later we have the seven wise men, the seven champions of Christendom, the seven heavens.

It is perhaps impossible to discover in what country, and at what time, the beliefs now common regarding the seventh son or daughter, originated. For the most part this peculiarity is a healing power, an ability to cure diseases by touch or other means. These virtues are intensified in the seventh son of a seventh son. In Cornwall the peasants believe that a seventh son can cure king's evil (scrofula) by touch. The mode of proceeding is to stroke the part afflicted thrice gently; to blow upon it three times; to repeat a form of words, and to give the sufferer a perforated coin to be worn as an amulet. In Ireland the seventh son of a seventh son is believed to possess prophetic as well as healing powers. France also believes in the seventh son. In Orleans, if a family has seven sons and no daughter, the seventh is called a "Marcon"; is branded with a fleur-de-lys, and is believed to possess the power of curing the king's evil. In some of the States of Germany it was formerly the custom for the reigning prince to stand sponsor for a seventh son of his subjects.

THE UNRELIABILITY OF TESTIMONIALS

It has been said—was it by Captain Marryat?—that one could get exceedingly strong testimonials to the efficacy of brick dust as a medicine. The experience of the United States Post Office Department in its efforts to prevent the sale of fraudulent medicines shows that this statement is no exaggeration. It seems that there are more fraudulent cancer cures than almost any other kind of medical fraud. One of these on analysis proved to be composed of water with a very small quantity of quinine in solution.—*New York Medical Journal*, March 14, 1914. The makers announced that it contained a large amount of radium, so large an amount in fact, as to be in excess of all the known quantities of radium in the United States; the mixture would have been worth several million dollars if the assertions of the manufacturers had been true. The manufacturers were denied the use of the mails by fraud order, but for more than eighteen months, after this order was issued, the post office department was bombarded with letters from people who asserted that they had been benefited by this cure, and begged the department to vacate the fraud order, and allow them to obtain the only medicine that would save their lives. In view of such faith, it need not be a matter of surprise to physicians that the advocates of drugless therapy of all kinds have a large following.

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ORIGINAL ARTICLES

THE CARE OF CHILDREN'S EYES

BY ALBERT BARDES, M.D.

New York

The age in which we live is an exciting one, and it is very trying upon the finer workings of the human machine. Life could not be as complicated as it is without putting the heaviest burden upon the eyes. Nowadays we virtually live through the eyes, and these being the most delicate parts of the human organism, the weakest link in the chain, they are the first to suffer from the ravages of the nervous energy to which we are subjected. Cross a busy street. The clang and rush of traffic illustrate the growing excitement of the present day. We work, we eat, and we live in a hurry. We rush through life without having a chance to enjoy it as we should. Not all of us hurry for the sake of growing rich, although riches is the inspiring motive of all this rush and bustle. We follow the crowd and are caught up by the whirlwind. As we look around at the seething activities of life we are forced to the conclusion that most of this is unnatural and detrimental to our physical well-being. Competition is becoming more active each day, and keeping up with the rest calls for more energy, more intelligence, and more concentration than ever before. It never was truer than it is to-day that we cannot afford to be less than our best. It follows, then, that a person with a good pair of eyes is better equipped to fight for a living than are those who are less favored.

A common fault with people who have good sight is over-confidence. They forget that the eyes have a limit of endurance beyond which it is unsafe to go. When their eyes fail, from misuse or from neglect, they wonder at it and are willing to move heaven and earth to atone for their neglect. A man once wrote a book

on the advantages of having a weak constitution. He stated that a person who is conscious of a physical defect is always careful lest something happen, and in this way avoids any mishap which might endanger his life. In the same way a person with weak eyes can with the exercise of a little intelligence learn how to use the eyes so as to get the maximum efficiency with the least inconvenience.

The eye is not a perfect optical instrument. Instruments have been devised which give greater precision, but, alas, they are of glass and are easily broken. For the manifold uses to which it is adopted the eye is the most remarkable mechanism in the world.

In proportion as knowledge advances, sight deteriorates. It is said that the intelligence of a people can be judged by the proportionate number of those who wear glasses.

It is well known that the sight, the hearing, and all the other animal senses are keener in savages than in civilized people. This is because most of our natural faculties are made subservient to the eyes, and these through excessive use lose their acuteness, and the former through nonuse lose theirs. Every organ and every sense is benefited by moderate use, but inaction or overaction is harmful. The sight of our ancestors was better than ours because they were less confined and strained their eyes less than we do. Their test for keen vision was to be able to see the double stars in the handle of the big dipper. How few of us can discern them with the naked eye.

Fortunately the dissemination of knowledge, which has weakened our sight, has enabled us to correct the optical defects which it has induced, so that on the whole the advance of civilization has been a blessing. There was a time when most people were opposed to the wearing of eyeglasses. Many physicians even shared this prejudice, but all this has changed and as a result we enjoy better sight than our forbears did.

Living in large cities conduces to short sight from constantly looking at nearby objects. Looking into the distance rests the eyes. A person who spends most of the time over books realizes this when looking over a vast expanse of water or into the distance. Healthy eyes should do their work without the consciousness of the owner. There should be nothing to remind us that we have eyes.

The time to begin looking after the eyes is in infancy. Some one has said that we would all be perfect if we had perfect mothers. At any rate, the intelligence and care which a mother exercises over her young offspring is usually productive of good for the remainder of their lives. Many a person is destined to go through life with

troublesome eyes from negligence or ignorance on the part of the mother. In fact, the majority of eye affections that come on in after life have their beginning in infancy. Three fourths of the inmates of blind asylums owe their misfortune to disease contracted in childhood, which could have been prevented. All too often when a baby's eyes are inflamed boric acid or some other simple household remedy is used for days and weeks at a time. Boric acid may do for a mild inflammation, which needs but to be kept clean, but for a severe affection of the eye it is useless. Many an eye has been lost by the persistent use of household remedies when more thorough measures were needed. It is surprising how quickly the sight of a child's eye can be destroyed. So generally are the eyes of children exposed to disease and injury that but few of them, whose eyes are neglected, reach manhood or womanhood with perfect sight.

One of the faults of the people of the present time, particularly Americans, is that they read too much. The reading habit is formed in early childhood and it lasts until the eyes give out. Everybody reads, on the cars, in the subway, and in all kinds of varying and shifting light. The reading habit has certainly impaired our ability to think and to memorize. An ancient Greek philosopher is said to have put out his eyes so that his meditations would not be disturbed.

As said before, we live through our eyes. Even in infancy most of the instruction is acquired in this way. Look at the school books of the modern child. A dozen subjects are studied at one time. Of course, much that is studied is soon forgotten, but, nevertheless, the effort of mastering the subjects is often too much for the tender eyes and it cripples them. A growing child, and particularly one in delicate health, should have the eyes spared as much as possible. School life is an unnatural one, although necessary to a child's welfare, and unless it is conducted in a manner favorable to a child's health and growth, it proves harmful rather than beneficial. A healthy child, like every young animal, would rather play than study. Play is nature's way of promoting growth and activity. Madame Montessori, the celebrated authority on the education of children, maintains that play should be the basis of all instruction in childhood. She imitates nature and leads the child on to study by making the subjects easy and interesting.

Children who are forced to study to excess, without getting sufficient relaxation, usually become top heavy. Many a mother is mistakenly proud of her infant prodigy, who stands at the head of the class and is constantly poring over books. Follow the career of

this exceptional individual and generally you will find an irritable and nervous person, with weak eyes and sloping shoulders.

Statistics show that the best scholars in the Universities and the people who make their mark in the world are those who indulge in plenty of recreation. This appears reasonable when we consider that bodily exercise quickens the circulation, and in this way stimulates the brain and helps the eyesight. Comparatively few athletes wear eyeglasses.

In many parts of Germany young children are instructed in a manner worthy of imitation. They are taught the practical side of life as well as the theoretical. They are made to observe and to think as well as to read. Once a week they accompany their teacher into a park or into a forest. Here the wonders of plant and animal life are seen and explained in a way that is never forgotten. The enthusiasm and the healthy color of the youngsters at these outings is a glad sight, and their knowledge of the mysteries of nature is truly remarkable.

Many children have weak sight without their parents knowing it. Apparently their sight is good, but they strain the eyes in order to see as well as they do. The eyes of many of these children are frequently inflamed. The eyes of others grow tired at night or after using them. Numerous children who are backward in school owe their defect to weak eyes, perhaps astigmatism or far sight. They do not see as clearly or as quickly as they should and naturally they fall behind in their studies. When reading becomes painful, and study becomes an effort, children grow to dislike books and turn their attention to something less onerous. In this way they lose interest in their school work and eventually become dunces or truants. Now and then a child discovers by chance that the sight is improved by looking through its grandmother's glasses. These, however, are snatched away for fear the child will ruin its eyes. Most likely the child needs just such glasses.

A great many eye complaints of children are caused by some nasal disorder, especially adenoids. There is an intimate connection between the eyes and the nose, and disease of the one is apt to influence the other. An eye trouble that comes from a diseased nose or throat will not get well until the nose and the throat are placed in a healthy condition.

One of the commonest eye affections of infants is a cast or squint. Many parents labor under the delusion that crossed eyes come from fright, from looking at the sun or from some prenatal influence. Squint is caused by weakness of certain muscles of the eyes, whose function is to keep the eyes straight. These muscles are miniature

reproductions of the muscles of the legs and they are subject to the same influences. Any disease that debilitates a child weakens the eye muscles in the same way that it enfeebles the muscles of the legs. Occasionally squint is the result of paralysis of the muscles of the eye, but this is exceptional in children. Generally squint is first noticed when a child is recovering from some severe illness which has sapped much of the strength of the little one. A great many adults injure their eyes irreparably by reading to excess to beguile the time while recovering from some prostrating illness. Unless the muscles of the eye have had time to regain their strength, premature use of them is apt to disturb their fusing power and produce double vision.

Perfect or binocular vision can only be obtained when both eyes work in unison. If one eye deviate ever so little, the sight becomes indistinct and blurred, and headache and perhaps one or more of the other symptoms of eye strain are apt to be present. Numberless people, especially ladies, suffer from symptoms which are attributed to the stomach, or to some other organ, when in reality they come from the eyes, perhaps an heritage of childhood.

The moment a child's eyes are seen to turn glasses should be provided. This prompt action often averts the many complications that arise from weak sight, and the necessity of an operation to straighten the eyes may be avoided. The length of time that the glasses are to be worn depends upon the seriousness of the complaint, and upon its chronicity. To be sure, most squinting eyes have a tendency to become straight of their own accord, after the child has passed the seventh year of age. Unfortunately, if we wait for nature to accomplish this object, the sight of the squinting eye becomes permanently impaired.

A person whose eyes do not work in harmony sees double. They soon learn, however, to overcome this diplopia by suppressing or disregarding what is seen with the poorer eye. Eventually, through disuse, the sight of this eye becomes worthless. It frequently happens that a person whose eyes are being tested separately, perhaps for a civil service position, is amazed to find that the sight of one eye is extremely poor, perhaps useless. Inquiry usually discloses the fact that the eyes were turned in infancy.

Most of the eye affections that arise in school life can be avoided by the observance of certain rules of hygiene and by other preventive measures. No child should be permitted to use its eyes unduly if the health is delicate or if the eyes are tired or are inflamed. The study room should have plenty of light and ventilation. A hot, stuffy room is as bad for the eyes as one with insufficient light.

Light from the side is best. Children must be taught to sit straight at their work. Stooping is harmful to the chest and leaning to one side favors spinal curvature, both of these positions are detrimental to the eyes. Backhand writing has been adopted to overcome these malpositions, by keeping the writing constantly in view. Pale blue ink that turns black should not be used, because its dimness causes a straining of the eyes. The eyes should be rested occasionally by looking away from the work or by closing them. The book of a child should be held from twelve to fifteen inches from the eyes. If it is held closer than this it is an evidence that the sight is imperfect and it should be tested. A brilliant light, whether gas or electric, is not as good as a subdued one, on account of the glare. A child that is very hungry or very tired cannot study to the best advantage. Nothing is worse for a child's eyes than to burn the midnight oil. Better wait until the morning. Moving pictures are extremely injurious to children with weak eyes. Even adults frequently complain of headache or dizziness from intently looking at them.

THE EFFECT OF ANIMAL EXTRACTS UPON THE SECRETION OF THE PANCREAS*

BY ISAAC OTT, M.D., AND JOHN C. SCOTT, M.D.

(*Physiological Laboratory of Medico-Chirurgical College
of Philadelphia*)

Pemberton and Sweet (*Archives of Internal Medicine*, Vol. IV, No. 5, page 466, May, 1910) found that the adrenal and hypophysis of dogs contain something which on injection into other dogs inhibits the flow of the pancreatic juice when excited by secretin. This inhibitory substance can be exhausted by salt solution, and has been found, as yet, in no other tissue of the body. Inhibition ensues whether the extract be injected before, coincidently with, or after the injection of secretin, and they were of the opinion that it was independent of the general bloodpressure. Their method of recording the flow from the pancreas was by means of a graduated cannula in the duct of Wirsung. As the juice flows past the divisions on the cannula its motion is recorded on the base line of a

*These experiments were made before the recent judicial decision in Pennsylvania on animal experimentation, which decision has prevented the completion of our work.

revolving drum supplied with a so-called endless roll of paper. Blood-pressure, respiration and time in seconds were coincidentally recorded.

Edmunds (*Journal of Pharmacology and Experimental Therapeutics*, Vol. I, 1909-1910, page 135) repeated some of their work and obtained the same general results and holds that the inhibition is solely due to a rise of pressure. Edmunds stimulated the splanchnics, which increased bloodpressure and inhibited the pancreatic secretion. Edmunds also noted that inhibition comes on more slowly with drugs and is not nearly so complete even when the bloodpressure is raised to an equal extent. Edmunds also states that the two drugs—adrenalin and nicotin—may cause more constriction of the vessels of the pancreas than does splanchnic stimulation, and thus greater anemia result from their use. Nicotin also inhibits the pancreatic secretion.

Edmunds (*Science*, 1909, XXXI, page 237) states that the inhibition of pancreatic activity is due to a vasoconstriction which may persist in the pancreas longer than does the general vasoconstriction elsewhere.

Pemberton and Sweet removed the thyroids and parathyroids in dogs. They found that the activity of the pancreatic secretion when excited by secretin, and of the inhibition of the pancreatic flow by adrenalin in thyroparathyroidectomized dogs indicate no clear departure from the normal in this regard.

Pemberton and Sweet also found that the inhibition of pancreatic activity by adrenalin and pituitary extract is independent of the systemic bloodpressure, as shown by its persistence when the bloodpressure is much below normal and by other evidence. The inhibition by extracts of pituitary and adrenal bodies also occurs when the pancreas is stimulated by its normal excitant, hydrochloric acid in the duodenum.

Pemberton and Sweet (*Archives of Internal Medicine*, Vol. VI, No. 5, page 536, Nov. 15, 1910) found that the removal of the adrenals induces in dogs a flow of pancreatic juice. Taken in connection with the inhibitory action of the adrenals and pituitary extracts on the pancreatic flow, it suggests a control over the pancreas by the adrenals, at least, in the absence of which the gland secretes more actively. This activation of the pancreas may occur with a high systemic bloodpressure, though it generally occurs when the systemic bloodpressure is relatively low. They also think that there is some evidence to indicate that on the death of a dog from removal of the adrenals there is present in the duodenum more prosecretin than exists in dogs otherwise operated on which have their adrenals

intact and which die after a comparably long period of etherization.

Pemberton and Sweet (*Archives of Internal Medicine*, Vol. X, No. 3, page 169, Sept., 1912) made some experiments upon dogs and found when the adrenals had been removed the following: Injections of epinephrin, made when the flow following the removal of the adrenals is at its height, inhibit the flow. Shortly after, or before the bloodpressure falls to its previous level, the pancreatic flow returns. It can thus be repeatedly inhibited and then repeatedly return. The tendency to flow seems very strong. Since removing the adrenals induces a flow, and since injections of epinephrin then inhibit the flow, and since the flow returns when the effect of the injection wears off (which can be repeatedly demonstrated in one animal), it is difficult to escape the thought that there is normally some such relation between the glands.

Our experiments were made upon cats thoroughly etherized and killed before regaining consciousness. A Bernard cannula was inserted into the pancreatic duct; the common biliary duct was tied during the laying bare of the pancreatic duct. The intestine was slit open for the entrance of the cannula. After its insertion the intestine was closed around it and the abdominal wall also united around it. A small string was attached just behind the opening of the cannula, with a little end to it, and the pancreatic juice ran back to the string and dropped from it. We then injected secretin solution into the jugular, as no secretion was noted before its injection.

To prepare the secretin we took the duodenum and part of the jejunum of the cat. (Starling. *Abderhalden's Handbuch*, Band 7, page 67, 1913.) We washed it with running water. Then it was cut open and the mucous membrane scraped down to the layer of muscle with a scalpel. The mucous membrane was rubbed up in a mortar with sand and a few drops of 0.4 per cent. solution of hydrochloric acid. Then enough hydrochloric acid solution was added until a creamlike solution was obtained. Then the mixture was heated in a porcelain capsule until ebullition ensued. When the mixture was boiling actively we added, drop by drop, a 10 per cent. solution of soda, until the fluid was neutral. Then the solution was filtered through a folded filter and the filtrate injected into the jugular with a syringe. We then counted, after the injection of secretin, the number of drops falling every 5 minutes for 15 minutes. Then we injected the same amount of secretin plus a solution of one of the dried glands with an internal secretion. Then we counted for 15 minute periods the number of drops every 5 minutes. Finally we again injected the same amount of secretin solution and

again noted the amount of drops every 5 minutes for 15 minutes. If in the second period we obtained a marked increase over or a decrease below the first and last periods after the injection of secretin solution alone, then we believed the animal extract increased or decreased the secretion of the pancreatic juice. To determine if the same amount of secretin solution always produced about the same amount of pancreatic juice, we made the following experiments:

Experiment 18. Cat, etherized; effect of secretin solution on pancreatic secretion.

P. M.		Drops.
3.05	8 c. c. secretin solution injected per jugular	0
3.10	.....	7
3.15	.....	8
3.20	.....	2
3.25	8 c. c. secretin solution.....	4
3.30	.....	8
3.35	.....	1
3.40	8 c. c. secretin solution.....	5
3.45	.....	7

Experiment 17. Cat, etherized; effect of secretin on pancreatic secretion.

P. M.		Drops.
3.20	8 c. c. secretin.....	4
3.25	.....	6
3.30	.....	3
3.35	8 c. c. secretin.....	2
3.40	.....	6
3.45	.....	3
3.50	.....	2
3.55	8 c. c. secretin.....	8
4.00	.....	6
4.05	.....	3

As is seen (Exp. 18), 8 c. c. of secretin solution gives 8 drops as the highest in the first period, 8 drops as the highest in the second period, and 7 drops as the highest in the third period. As is seen, the results are fairly constant. Hence, an injection of the infusion of the animal extract in the second period leads to the conclusion as to an increase or decrease of pancreatic secretion. We tried 0.3 c. c. of adrenalin in solution and brought the secretion to

a standstill, as had been pointed out by Drs. Pemberton and Sweet. Infundibulin (or pituitrin, or hypophysin of Fühner) also produced the same results. Edmunds obtained the same results and attributed it to the anemia of the gland by vasoconstriction, but our experiments upon the volume of the pancreas show that adrenalin increases the gland volume, the vasoconstriction was only for three and a third minutes before the increase in volume, due to a vasodilation. We noted the same effects of adrenalin in studying the volume of the kidney and its increased secretion of urine. Infundibulin has at times a stage of vasoconstriction for about 3 minutes, and then increases the volume of the pancreas to a marked degree.

It is possible that the increase of volume after the use of adrenalin and infundibulin might be due to the added secretin, which also increases the volume, but when you come to examine their action on the spleen we find the same decrease of volume with a subsequent increase, just as we did with the pancreas.*

Although there is a vasoconstriction by both adrenalin and infundibulin for about three minutes, after that we have a vasodilation. The vasoconstriction might account for the first five minutes of decrease of secretin. But for ten to twenty minutes afterward the secretion goes on decreasing, although at this time there is a vasodilation and an increase in the volume of the gland. In the case of the sweat glands, one of us has called out in the amputated leg of the cat a secretion by the irritation of the sciatic. And in the mammary gland we have an increase of the milk secretion with agents which produced a vasoconstriction, like infundibulin. Increased or decreased vascularity plays a minor part in the action of secreting glands. Hence, we believe with Sweet and Pemberton that there is a direct action of adrenalin and infundibulin upon the cells of the pancreas to diminish its secretion. The results of adrenalin are shown in the following experiment:

Experiment 19. Cat, etherized.

P. M.		Drops.
3.10	8 c. c. secretin solution.....	0
3.15	8 c. c. secretin solution.....	6
3.20	.....	5
3.25	8 c. c. secretin solution.....	2
3.30	0.3 c. c. adrenalin solution.....	4
3.35	.....	3
3.40	.....	0

*American Medicine, April, 1914, p. 249.

Experiment 2. Cat, etherized.

P. M.	Drops.
3.10	0
3.15	0
3.20	0 2 c. c. secretin solution.
3.25	7 6 c. c. secretin solution.
3.30	4 0.3 c. c. adrenalin solution.
3.35	2
3.40	3
3.45	1
3.50	0
3.55	0

As to pineal infusion, it increased the pancreatic secretion and increased the volume of the gland. We have the following experiments to prove it.

Experiment 12. Cat, etherized.

P. M.		Drops.
3.10	8 c. c. secretin solution.....	0
3.15		10
3.20		13
3.25	8 c. c. secretin plus .06 gram pineal.....	7
3.30		18
3.35		16
3.40		10
3.45		9
3.50	8 c. c. secretin.....	15
3.55		15
4.00		10

Experiment 13. Cat, etherized.

P. M.		Drops.
3.20	8 c. c. secretin solution plus .06 gram pineal	8
3.25		13
3.30		9
3.35	8 c. c. secretin solution plus .06 gram pineal	8
3.40		16
3.45		11
3.50	8 c. c. secretin solution.....	12
3.55		10

As to the infusion of the parathyroid, we also found an increased secretion and the greatest increase in the volume of the pancreas.

Experiment 16. Cat, etherized.

P. M.	Drops.
3.00 8 c. c. secretin solution.....	0
3.05	12
3.10	8
3.15	5
3.20 8 c. c. secretin solution plus .06 gram parathyroid.....	19
3.25	12
3.30	7
3.35 8 c. c. secretin solution.....	14
3.40	8

Experiment 22. Cat, etherized.

P. M.	Drops.
2.59	0
3.00 8 c. c. secretin solution.....	17
3.05	12
3.10	8
3.15 8 c. c. secretin solution plus .06 gram parathyroid.....	24
3.20	14
3.25	9
3.30 8 c. c. secretin.....	16
3.35	10
3.40	5

As to the infusion of the mammary gland, it increased the pancreatic secretion and also increased the volume of the gland.

Experiment 25. Cat, etherized.

P. M.	Drops.
2.55	0
3.00 8 c. c. secretin solution.....	15
3.05	10
3.10	6
3.15 8 c. c. secretin solution plus .06 gram mam- mary gland.....	20
3.20	16
3.25	8
3.30 8 c. c. secretin solution.....	20
3.35	14
3.45	7

Experiment 26. Cat, etherized.

P. M.	Drops.
3.19	0
3.20 8 c. c. secretin solution.....	16
3.25	21
3.30	19
3.35	14
3.40 8 c. c. secretin solution plus .06 gram mammary	23
3.45	22
3.50	23
3.55	17
4.00 8 c. c. secretin solution.....	20
4.05	21
4.10	17
4.15	15

Experiment 28.

P. M.	Drops.
2.49	0
2.50 8 c. c. secretin solution.....	17
2.55	20
3.00	9
3.05	5
3.10 8 c. c. secretin solution plus .03 gram mammary	24
3.15	23
3.20	17
3.25	8
3.30 8 c. c. secretin solution.....	15
3.35	12
3.40	8
3.45	4

Appended is a resumé of the effect of some of the animal extracts upon the pancreatic secretion and the volume of this gland.

ANIMAL EXTRACTS	PANCREATIC VOLUME*	PANCREATIC SECRETION
Parathyroid	increases	increases
Secretin	increases	increases
Mammary	increases	increases
Infundibulin	decreases for 3 minutes, then increases	decreases (Sweet & Pem- berton)
Adrenalin	decreases for 3 1/3 min- utes, then increases	decreases (Sweet & Pem- berton)
Pineal	increases	increases

*See Therapeutic Gazette, 1914.

This resumé shows that all the extracts used increased the volume of the pancreas and also increased the pancreatic secretion except adrenalin and infundibulin. Twenty eight experiments were performed.

PUERICULTURE AND EUGENICS IN ANCIENT GREECE

BY DR. M. MOISSIDÈS

Editor in Chief of the Greek Medical Journal "Hippocrates"

Constantinople

(Translated for THE AMERICAN PRACTITIONER by A. ROSE, M.D.)

Before we begin to discuss the principles which existed among the ancient Greeks concerning puericulture in general and eugenics in particular, it may be useful to refer briefly to the etymology of the word eugenics, introduced by Sir Francis Galton, of London.

Eugenics is the science which has for its object "the study of the causes, submitted to social control, which can ameliorate or weaken the physical or moral qualities of the human race of future generations.

The aim of this science is to regulate matrimonial unions in such a way that there are secured the greatest proportion of individuals judged to be best qualified to constitute the best population.

Three almost identical terms are current to designate this new science: Eugeny, Eugenics, Eugenetics.

The word Eugeny, composed of εὖ and γένος signifies nobility, *noblesse*.

The word Eugenics, composed of εὖ and γεννιος very little used by the ancient writers, means courageous, generous. The Byzantines employed it to designate one who issued from a good race.

The eugenetic or eugenetics, composed of εὖ and γεννηθινός does not exist in Greek. The second part of the word, γεννηθινός is found especially in Aristotle and means some one who is apt to engender.

I think that of these three words, indistinctively used by writers, Eugenics is the one which, regarding etymology and grammar, corresponds best with the definition of the new science.

In a monograph published in Greek, "Callipædy, Formerly and at Present," Constantinople, 1912, I introduced the word callipædy to designate the science of the procreation of beautiful children.

Greek historians tell us that callipædy was cultivated not only on the part of the physician, but also by women as one of their first occupations with cosmetics.

We shall learn, in the course of this study, what were the means employed by the Greek callipædist^s to attain the procreation of beautiful children.

Puericulture was described in the year 1865 by Dr. Caron.* According to Professor A. Pinard's† definition, it is the science which has for its object the research for knowledge referring to the conservation and amelioration of the human race.

In studying the writings of the great physicians, philosophers and legislators of ancient Greece, we are filled with admiration of their subtle and ingenious minds in their expressions of just and elevated ideas on puericulture in general.

Natural and artificial selection was advised by the greatest thinkers of ancient Greece, and was practiced in some cities with a somewhat exaggerated vigor.

The first part of puericulture, or puericulture before procreation, is, according to the unanimous opinion of all puericulturists, the most important. It is with this part that all attempts of conservation and amelioration of the human race must begin.

"The future of the race," says Pinard, "depends to a great extent on puericulture before procreation." To procreate healthy and strong children it is necessary that the procreators themselves be in perfect health, and, as Pinard very justly says, that they are, in regard to physique and morals, at the maximum of eurythmy.

The Greek marriage in general, and the Athenian marriage in particular, can be defined as "the union of man and woman formed for the purpose of the procreation of legitimate children." In a fragment of the Greek poet Menander (342-290 B.C.), quoted by several authors, the father in law says to his future son in law: "I give you my daughter to procreate legitimate children."

In Athens, according to Clement of Alexandria, the sacramental formula pronounced at the nuptial ceremony was this fragment quoted from Menander. In Sparta, according to numerous evidences, the same formula was pronounced.

The attitude of the Greek legislature regarding marriage was different in the various towns in Greece. The legislature in some regulated the marriageable age, while in others it punished what it considered as bad unions.

A very careful selection was made in the Island of Crete. The Cretan morals dictated the intermarriage of the handsomest and most robust of the different tribes, so that a most admirable type

*Caron, *La puericulture*.

†Pinard, *Révue scientifique*, 1899, February 11, and *Paris med.*, 1910, October 31.

in regard to anatomical form could be perpetuated. And this, we see, in looking at the Cretans of the present day, must have been accomplished.

The laws of Lycurgus repressed unions which would compromise the vigor of a military people or the purity of an aristocratic race. King Archidamos was fined because he married a woman of small size, thus risking the giving to Sparta, instead of kings, kinglings.

Plutarch reports that Lycurgus supervised the education of children as well as regulations concerning marriage and procreation. The girls were trained for speed in running, in fencing, throwing of the disk and darts, in order that they might well endure the labor pains and give birth to healthy and robust children by first making themselves most healthy and robust.

Xenophon writes in his book "The Government of the Lacedæmonians": "Lycurgus, convinced that the noblest task for women was to rear children, began by ordering bodily exercises for them, as well as for men, and prescribed for them, as well as for men, racing and fencing, with the view that robust parents would have vigorous children."

Plato, approving this standpoint of the Lacedæmonian legislators, writes: "The State alone has the right to regulate unions, not according to the will of those conjoining, but exclusively with a view to the general interest of the nation. It is for the magistrates to select the bravest men, the handsomest women, in order to obtain the best offspring."

Aristotle probably had Sparta in mind when he said: "Since it is one of the duties of legislators to establish among its citizens the principle of rearing able bodied offsprings, the first great care should be directed to marriages, to the conditions of the marriage contract. Here two things are to be considered: the persons and the probable duration of their union, in order that their ages and faculties may never be in discord; that the husband can yet beget; that the wife will not become sterile, or *vice versa*."

The age of marriage is differently estimated by the ancient Greek writers. According to the Athenian law, a man could not contract marriage before having passed his eighteenth year and being inscribed in the list of the bureau of citizens. The age of the woman was not stated. According to Demosthenes, it is thought to have been fixed at fifteen years; other authors, however, say that a girl could be married before that age, at thirteen or even at twelve years.

In Sparta, as it seems, the women married generally at the age of twenty, the men at thirty. "In Sparta," writes Xenophon, "the

legislature has ordered marriages during the vigorous period of the body, in order that the children shall be vigorous.

"The Spartans," says Plutarch, "married at the age of full puberty."

Hesiod advises as the age for marriage of the man thirty, and for the woman eighteen years.

Homer says that a young man should marry when he has a beard.

Plato, in his "Republic," demands the age be twenty to forty years for the woman, and for the man thirty five to fifty five years; but in his "Laws" he is less severe, appointing the age of sixteen to twenty for the woman and thirty to thirty five for the man.

Aristotle considered that the social order fixed the age for marriage at eighteen for women and thirty seven, or a little less, for men. "Within these limits," he writes, "the moment of union will be exactly the time of all the strength, and the married will have alike time to procreate conveniently until nature takes away their generative power."

Notwithstanding this difference concerning the age for marriage, all Greek writers agree as against too early or too late unions. First, they thought it wrong to marry young people of equal age, because the menopause occurs earlier in the female than the climacteric in the male.

Early marriages were considered injurious as well to the race as to the individual. Aristotle writes, in his "Politics": "The premature and precocious marriages are bad for procreation. In those cities where the custom reigns to marry young lads to young girls, the children from such unions are pitifully small and bodily deficient." The same author condemns late unions, writing: "The too old produce only offsprings incomplete in body and mind, while the children of old men are of an irremediable weakness."

Great differences in the ages between the husband and wife was condemned very severely. Several quotations from the poetical writings of Stobæus condemn men who marry at a very advanced age, while the influence of early marriages on woman is distinctly pointed out by Aristotle, who writes: "The too young women suffer very much more, while they succumb more frequently, during childbirth."

It has been said by modern writers that Greek women in ancient times occupied an inferior position in the family, as well as in society; that their physical and moral culture, a question so important in regard to puericulture before procreation, was banished to second place or completely ignored; that at the Greek marriage all regards to mutual sympathy between the couple was put aside, and

that the Greek girl was kept imprisoned in the gynæceum;* but there is no authority for these statements.

Notwithstanding her enclosure in the gynæceum, the Greek girl took an active part in physical exercises in the palæstra and was seen quite frequently in public at the innumerable feasts of the ancient city of Athens. The Æolians and Dorians accorded woman a considerable part in society. The Ionians had a lesser regard for her, keeping her confined in the gynæceum.

In Athens, according to Plutarch, not only the mutual and free consent of the couple to marriage was necessary, but they had to undergo a minute examination to verify their physical fitness and the integrity of the sexual organs of the lad as well as of the girl. Having attained the age of puberty, both were examined at the bureau of registration for entrance on the list of citizens. The lad in complete nudity, the girl nude to the waist.

The laws of Sparta prescribed that girls take exercises like the boys in running for speed, fencing, throwing the disk and the dart and jumping in the palæstra.

"The Spartan girls," says Plutarch, "trained their bodies by means of bodily exercises, which made them vigorous and apt to give birth to robust and well formed children.

Aristophanes presents us, in his "Lysistrata," to the delegate from Sparta, Lampito, superior in strength, in health and beauty to the Athenian women. Lampito, praising herself, said that she owed her good looks to physical exercise. The young Lacedæmonians developed their muscular vigor in singing and dancing before the people, and in fencing naked in public.

In Athens the girls took part in the religious feasts together with the lads, as we learn from fragments of Menander.

There existed in Teos a real coeducation of the sexes, the girls frequenting the same school as the boys. On the Island of Chios girls and boys fenced together in the palæstra. In Kios (Bithynia), according to Plutarch, the young girls took part in numbers in public festivals, passing the day together in dances and games. In Arcadia, choirs of boys and girls marched together at certain solemnities. In Elis the girls cultivated gymnastics with great ardor. During the celebrated feasts in honor of Hera they strove for the prize for speed in running, the participants being divided into three classes, according to their ages; the prize for the victors was a crown of olive twigs and immolation to the Goddess.

*The woman's apartment, which was separate from that of the males in the homes of ancient Greeks.—EDITOR.

It seems that the women ceased practicing gymnastics, at least in public, only when they became married.

Plato was so fascinated by the system of culture practiced in Sparta that he, the great idealist, wanted to have it introduced in his Republic. He recommended gymnastics to all women, without distinction of age, and demanded that the girls should take part in the foot races naked until the age of thirteen, and that they should continue the practice from that age on, conventionally dressed, until the time of their marriage.

These intimacies between the two sexes were to foster acquaintances, in order to form an ideal union, with the thought of puericulture, which, however, did not exist in all Greek cities. There was always a gap to fill, and it was for the midwives to intervene. They played a very important rôle in the formation of conjugal unions.

A picture of the profession of midwife has been drawn by Socrates; it gives an exact idea of the great part taken by these brokers of ancient times: "Did you not notice another of their talents, which is to be very skillful in the making of marriages, since they judge to perfection which man and which woman should unite to have the best developed children?"

Having presented questions concerning Greek marriages in general, we shall refer to the ideas of the ancients in regard to the hygiene of the act of procreation.

Hippocrates, after giving long details concerning the hygiene of coitus, writes: "The man should be of good health and strength; he should have drunk pure and very strong wine, but he should not be in a state of intoxication."

The celebrated Greek physician, Athenæus of Tarsus, of whose writings some fragments only have been preserved through Galen and Oribarus, formulated a series of rules concerning the act of procreation, which are full of wisdom and originality. "Those who intend to have children," he writes, "should have body and soul in the best possible conditions; the soul should be tranquil and completely exempt from pain and sorrow associated with fatigue or other affections; the body should be sound, and, in one word, it should not be deteriorated in any way, for not only the quiet and healthy engender children, but the sickly have also, but sickly children, as well as regards these children's bodies in general as also every part in particular. For this reason it is well to be prepared, by appropriate regimen; by taking sufficient exercise and by avoiding all disorders; by partaking of good dishes of light, digestible food, which nourishes well and is moderately moist, moderately warm, and to abstain from aliments which are too much heating.

Athenæus' advice is to lead a regular life, as well during the day of sexual approach as during the preceding days, in order that the semen be of good character and in sufficient quantity, and that there be an attraction and an ardent desire for cohabitation, for, as Andreas says, those who make a continual practice of coitus gather an imperfect and unripe semen."

The author finds it rational to advise women to observe a reasonable interval between the successive conceptions, for those who conceive in too rapid succession compromise seriously the nutrition of their body, spoil their figure and bring forth children who resemble them in these respects.

Soranus of Ephesus, the greatest gynecologist of antiquity, writes thus in his treatise on "Diseases of Women": "In summing up, it is desirable that the whole body of the woman and the uterus should be in perfect condition, for a meager field gives only a mean harvest, plenty of incomplete maturity, but of poor quality; so the sexual organs of women, when not in normal state, do not retain the product of conception, nor properly develop it."

The bad influence of alcohol on the product of fecundation, proven today by statistics, was known to the ancients. Diogenes of Sinope, the famous cynic philosopher, seeing an unbalanced and imbecile young man, said: "Young man, thy father must have begotten thee while in the state of drunkenness."

Plutarch, who reports this anecdote, writes on the same subject thus: "Those who approach their wives for the purpose of procreation should perform coitus either without having been drinking wine at all or having only made moderate use of it, for the children procreated during a state of drunkenness of their father have a tendency to become drunkards."

Plato is even more severe, saying: "When one thinks of making children, one should abstain from wine completely during the night." This formal interdiction concerns the husband as well as the wife.

The psychic disposition of the parents at the time of procreation was also regulated by the ancients.

Hesiod says, in this regard: "Do not procreate on the return from the sad cemetery, but after a feast."

HEREDITY AND PULMONARY CONSUMPTION

BY THOMAS J. MAYS, M.D.

Philadelphia

Three decades ago, when the tubercle bacillus was discovered, it was freely asserted that the mystery of the nature, cure, and prevention of this disease was at last laid bare, and that the older

views concerning it were no longer tenable. Among the supposed obsolete beliefs which had to go to the wall was that of heredity, but, like many other assurances which were given out then, it will be shown here that at least in one instance the sponsors for this declaration reckoned without their host.

That consumption is a family, or an inheritable disease, is based on a long line of medical experience, and cannot be assailed successfully by any design belonging to the "sail-trimming order." In qualification it must be stated, however, that heredity does not imply a bodily transmission of the disease, but merely the power of imparting a certain abnormal tendency by the parent to the offspring, which produces a greater susceptibility to this disease than that which exists in the children born of different stock. It is probably true that every individual is burdened with some diseased heredity, and marches from the cradle to the grave in a direction which is molded by the angle of this inclination. Some suffer from a rheumatic diathesis, some from an insane tendency, some from a consumptive trend, others from a cancerous burden, and so on—showing that heredity is a widespread factor in the propagation and distribution of disease.

In more forceful terms it may be stated that heredity is one of the fundamental agencies that makes for the perpetuation of the human race. It is as important to the preservation of the race as eating is to the sustenance of the individual life, and he who undertakes to read it into oblivion has forgotten either his physiology or his biology. It is the memory of what has transpired during the development of both the race and the family, and implies the existence of two factors: First, an environment, and second, a medium on which the environment impresses itself more or less permanently. All the tissues of the body possess the capacity of being impressed by outside influences, but the nervous system is the structure which is pre-eminently endowed with the property of receiving, recording, and transmitting impressions. The marked sensitiveness of the nervous system explains not only why diseases of this structure are so liable to assume a chronic form, and why its affections are more readily transmitted than those of other textures, but also gives the reason why pulmonary consumption is frequently the legitimate successor of disorders of the brain and the nervous system.

The heredity of consumption may be divided into the direct and the indirect form. Direct: When the disease exists in the family, and is transmitted as such to the offspring. Indirect: When insanity, idiocy, epilepsy, hysteria, alcoholism, or some other form

of nerve degeneration obtains in the family, and is transmuted into consumption in the children.

In regard to the evidence, direct heredity statisticians differ somewhat in their conclusions, on account of including in their estimate various degrees of relationship. Parental influence being alone considered, there is only a showing of about 25 per cent. of cases. When the whole family relationship is taken into consideration, the cases of heredity vary from 50 to 60 per cent.

The indirect form of heredity of consumption finds its source in insanity, epilepsy, and other nerve disorders. The figures of Clouston, Georget, Boyd, and Tomlinson show that from 33 to 70 per cent. of the hospital insane die from chronic pulmonary disease, and the vast proportion of them from pulmonary consumption. Out of a collection of 4,055 cases of insanity, 1,559, or 37.95 per cent., died of chronic lung disease. According to Koehler, Tuke, Kerlin, and other prominent authorities, epileptics and idiots are not only prone to die of pulmonary consumption, but possess a history of that disease among the members of their families varying from 30 to 50 per cent. The Nineteenth Annual Report of Craig Colony of Epileptics states out of the admission of 220 cases of epilepsy for that year there was heredity in 140, distributed as follows: Epilepsy, 43 times, or 30 per cent.; alcoholism, 46 times, or 32 per cent.; pulmonary consumption, 30 times, or 21 per cent.; insanity, 11 times, or 7 per cent.; and feeble-mindedness, 3 times, or 2 per cent.

Moreover, the same report gives the causes of death during the year, the total of which was 136. Of these there were 33, or 24.26 per cent., who died of causes ascribed to diseases of the nervous system, such as exhaustion from epileptic seizures, 26; apoplexy, 1; softening of the brain, 2; hemorrhage of the brain, 3; while, on the other hand, 33 died from pneumonia, 18 from pulmonary consumption, and 15 of pulmonary edema, showing that 66, or 48.52 per cent., died of lung affections. In other words, that among 136 epileptics there were 50 per cent. more deaths from pulmonary disease than from diseases which could be attributed to the nervous system. The other 37 died of typhoid fever, heart disease, nephritis, drowning, cancer, anemia, etc.

Of fifty one of these bodies on which autopsies were held in only 14, or 20 per cent., was death due to apoplexy, pachymeningitis, atrophy, cyst, glioma of the brain, and microcephalus; while in 37, or 54 per cent., death was laid to pneumonia, pleurisy, pulmonary consumption, pulmonary congestion, and edema—pointing out that deaths from lung diseases found on the *post mortem* table were greater by 72 per cent. than from nervous diseases.

That which is true of indirect heredity, in relation to insanity, hysteria, idiocy, epilepsy, etc., is also true of alcoholism and of all other diseases, the basis of which is disordered innervation. Therefore, any cause or influence which tends to undermine the integrity of the nervous system, paves the way for the onset of pulmonary consumption, and in this manner indirect heredity becomes a powerful ally in the propagation of the latter disease.

In conclusion, it may be said that on account of the laws of variability and adaptability, which obtain throughout animate nature, the forces of health and disease may be so modified by the application of well directed preventive and therapeutic measures that the course of the heredity forces may be so deflected from their original course that they will never develop their diseased activity. This is a question, however, which does not strictly belong to the subject of this paper and may be taken up at a later time.

THE NEEDS OF PATIENTS DISCHARGED FROM TUBERCULOSIS SANATORIA*

BY CHARLES F. BOLDUAN, M.D.

Department of Health, City of New York

The meeting of this association here to-day is concrete evidence, if such were needed, that we realize that the only way to control tuberculosis is through organization. I feel certain that thirty years ago, just after Koch had shown the causative rôle of the tubercle bacillus, no one had any idea of the difficulties which would be encountered in dealing with tuberculosis, nor did any one foresee the splendid system of coordinated effort now brought to bear in combatting the disease. I refer to this because I recognize that the shortcomings, to which I desire to call attention, represent matters which have had to await their turn. The work has had to be done step by step; in fact, many of the problems have only appeared as the work progressed.

Several years ago the Council of Jewish Women made a study of almost one thousand cases discharged from the sanatoria caring for the tuberculous poor of New York City, i. e., Otisville, Raybrook and the Montefiore or Bedford Hills Sanatoria. The investigators sought to learn something about the physical condition of the patient (whether still alive, and if so, his condition, habits, and whether still under medical supervision). Furthermore, data concerning his economic condition were obtained, i. e., his housing and

*Read, by invitation, before the Annual Meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 8, 1914.

living conditions, whether or not he was employed, and how, and the degree of the patient's dependency on others.

So far as the results of this investigation are concerned, let me begin by saying that no trace could be found of 43 per cent. To any one who has ever undertaken studies of this kind, especially among the poor, this will not be at all surprising. Largely because of the presence of tuberculosis in the home, the family moves again and again, usually to poorer quarters, and all trace of them is lost. In order to help us somewhat in this direction, we now ask at Otisville for the names of two different friends of the family, and also inquire concerning any lodge or church affiliations.

Out of our study of the 554 patients of whom we had some knowledge, 140 were known to be dead, and of the 410 known to be alive, 111 had moved away from the city and could not be visited. This left only about three hundred living ex-patients to study. For reasons which I have already stated in our published report concerning this matter, these three hundred may be accepted as quite representative of the entire thousand. What does an analysis of these cases reveal?

In the first place, it was found that over 25 per cent. of these patients lived in dark tenements, i. e., in tenements in which more than half of the rooms had no daylight directly reaching them. In over one third of the cases, the patient did not have a separate room; and in one seventh of the cases the patient did not even sleep alone.

Let us look at another point studied in detail in the three hundred cases above referred to, namely, occupation. Taking first the various occupations, we found that before admission the patients followed four outdoor and eighty six indoor occupations: after discharge, there were twelve outdoor and ninety six indoor occupations. This comparison, however, becomes more striking when we note the number of individuals following the various occupations. Thus, before admission, 14 out of 228 individuals followed outdoor occupations, approximately one in sixteen. After discharge, 44 out of 165 followed outdoor occupations, a proportion of more than one in four.

This, you will say, is not a bad showing. Perhaps not; but, it must be remembered that the large majority of these patients were under the supervision of clinics and other special tuberculosis agencies, and the proportion of fresh air occupations after discharge, about one out of every four working patients, represents about the best that can at present be done. But four out of four should work in the fresh air, not merely one in four. No doubt you all have

tried, at some time or other, to find suitable fresh air employment for a patient in whom you were interested, and you realize how difficult it is to find such positions. Moreover, the question of occupation should not be considered apart from home conditions. It will avail little if we find a suitable outdoor position, and then allow the patient to live in a dark, stuffy tenement.

In this connection I should like to call attention to a matter of sanatorium management which bears directly on the subject in hand, namely, compelling the patients to work while in the institution. At Otisville, you know, a large part of the work of the sanatorium is performed by patients; every patient except such as have toxic symptoms, or are undergoing the preliminary period of observation, has a definite duty assigned to him. This plan, insisted on by Dr. Biggs from the outset, has proven itself practicable, and of the greatest value to the patients. In some quarters objection has been made; it is said that this plan involves almost no saving in the cost of administration. This, however, is not the point at all. Even if we concede that there is little or no saving, the value of the plan lies in the benefit it confers on the patient. It prevents, as Dr. Biggs has well said, the "conversion of a sick tuberculous workman into a fairly healthy loafer."

Do not the figures cited a moment ago indicate where we ought not to concentrate all our activities? Has not the time come for us to stop advising consumptives as to the importance of fresh air, the need for employment in the open air, and the necessity for sunlight and fresh air in the home, in short, stop telling him to do the impossible, unless we take more energetic steps to place all these things within their reach.

I am sure you will all agree with me in saying that much of our antituberculosis work at the present time is futile, is but working in a circle. We organize elaborate systems of dispensaries, notification, home visitation, etc., to search out the infected; we secure for them expensive sanatorium care, and then—turn the patients right back into conditions which nullify all our work within a few months. I do not mean by this to say that we should abandon any of this work. It is all very necessary, but while we have done so much to search out the cases, and to provide dispensary, day camp, sanatorium and hospital accommodations, we have done very little for our patients after that. I may even go so far as to say that all our splendidly organized system for the care of the tuberculous, up to and including sanatorium and hospital care, is practically complete, but from that point on the work has hardly been considered.

From now on we should make every effort to provide suitable,

remunerative fresh air employment for the tuberculous, especially for those discharged from sanatoria, and hand in hand with this should go the provision of proper, sanitary living conditions, not only as regards housing, but also as to food and clothing. How all this shall be accomplished is a difficult problem, but the problem is one which must and will be solved. Industrial colonies in the country, open air factories in the cities, coöperation with those providing outdoor employment, all have carefully to be considered, and probably all will have to be utilized to meet this great need. I hope that the other speakers this morning will be able to present a definite programme showing us how all these things may be attained.

THE PHYSIOLOGY OF RABELAIS

Most medical readers, who occasionally while away an evening hour over the fantastic creations of Rabelais, seldom notice, or rarely remember, that his pages include the best compendium of the physiologic knowledge of his time that has descended to us.

American Medicine quotes an extract from the Dublin reprint of Ozell's version (1738), from which it is clearly shown that Rabelais had very definite ideas of the processes of waste and repair, of absorption, assimilation and elimination, as they go on in the human body. Also that he had perfectly clear notions of the continuous movement of the blood, which was the sole vehicle of the requisite pabulum.

François Rabelais was born in 1483, the year in which Martin Luther first saw the light; and he died in 1553, the year in which Michael Servetus was burned alive for "heresy" on the prosecution of the so-called "Protestant Pope," John Calvin. And another melancholy item of knowledge of the history of scientific progress is furnished in this connection by the deplorable fact that the volume which furnished the evidence on which Servetus was convicted, and which was tied to his thigh and burned with him at the stake, also contained the first description of the (pulmonary) circulation of the blood.

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JOHN W. WAINWRIGHT, M.D., EDITOR

Address all communications to
JOHN W. WAINWRIGHT, M.D.
THE AMERICAN PRACTITIONER
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EDITORIALS

APROPOS OF AN EUGENIC PARADOX

We have two interesting communications in this issue of THE AMERICAN PRACTITIONER, both referring to eugenics among the Hebrews during the time of Moses. That from the Rev. Dr. Pereira Mendes is a comment upon an editorial in the PRACTITIONER, August, 1913, "An Eugenic Paradox," wherein we referred to Dr. William T. Salmon's article in White and Jelliff's work on Mental Diseases, where he declares that one third of the immigrant arrivals at Ellis Island, New York, certified to as insane or mentally defective by the Public Health Service are Jews, although the Jews constitute only 14 per cent. of the total immigration. Comment was made on this, and the mental condition of the Jewish immigrants attributed largely to consanguinity, or inbreeding of the Hebrew race. We are not in possession of statistics to verify this statement, but quote Friedmann, in the *Journal of the American Medical Association*, March 9, 1912:

"In human beings, as in other species, crossings between different species produces hybridism—breeding exclusively in one line or variety of species—which is equally as harmful as consanguinity. In the human race this seems to produce organisms prone to mental disorder and defect." But it is equally true that "mating in the same branch of a race can bring no new determiner to that branch, or the opportunity for the exercise of selective evolution, but re-

cessive characteristics are retained to be emphasized at some future time in the form of a distinct defect. Intermarriages between Jew and Gentile have produced remarkable specimens both mentally and physically. Even marriages between Jews of different nationalities have wrought an improvement, and have showed the influence of environment in the physical characteristics of the same race. The same rule will hold for crossings between other nationalities, such, for instance, as the Anglo-Saxons and Latins. But crossings between different races, the Caucasian and Negro, or Caucasian and Mongolian, have a tendency to produce hybrids or mongrels."

Perfect men can come only from matings of the fittest, between branches of the same race; from the highly developed, alloyed with the cruder—the mentally superior with those physically strong.

Our good friend Dr. Douglas H. Stewart contributed an editorial to the PRACTITIONER in September following, asking, "Did Moses Foresee the Eugenic Paradox?" wherein he called attention to the historical fact that Moses did not forbid international marriages, but himself married twice, the first wife being Zipporah, a white woman, a Midianite and a Gentile; the other a colored woman, an Ethiopian. Moses was evidently much attached to his Ethiopian wife, for when his brother Aaron and sister Miriam objected to a colored lady in the family, Miriam was punished with leprosy, and Aaron, the high priest and brother, was compelled to declare his sister unclean and put her without the camp. Further, that Moses introduced thirty two thousand Midianite virgins, Gentiles, into the camp. He forbade intermarriage with the Canaanites, because they were idolaters, who followed obscene and degenerate practices. Moses also commanded that "when thou seest a beautiful woman among the captives, thou shalt have her for wife." And again, "The women, the little ones, and the cattle, and all that is in the city, shalt thou take for a prey unto thyself." All of which seemingly proves that the great lawgiver realized the difficulties of building up a virile and mentally strong race if consanguineous marriages prevailed exclusively. That the Jewish people have departed from these personal and national examples is known, which fact, it is believed, will account for the Eugenic Paradox above referred to.

The good Dr. Mendes, in his paper, which appears elsewhere in this issue, admits that "Moses did realize the undesirability of intermarriages among his people; that he believes the prohibitions of Moses were sound," and quotes him further: "The captive woman is to be parted a whole month to mourn for her parents, during which time she is to reside under the protection of her captor, who was not allowed to marry her until the end of the month. Then she became his regular wife. There is a remarkable provision that, 'if at any time she displeased him, she was, nevertheless, never to be sold as a slave, but should be free to go wherever she wished, if she wished to go'; thus, as Dr. Stewart declares, anticipating divorce, which will come as a surprise to most of us.

Dr. Mendes touches lightly on the question of Mosaic circumcision. He, however, brings to view some very interesting questions concerning the customs of the followers of Moses. He asks, as will be seen by reading the communication, whether any of our readers can give information relative to why women during their menstrual periods and the climacteric are subnormal physically, mentally, morally or esthetically, and declares that he has data which discloses that 46 per cent. are subnormal physically, as well as mentally and spiritually, at such periods. That in Leviticus it is indicated that a woman is subnormal for forty one days after the birth of a male child, and eighty days after the birth of a female child." This is a very interesting question. Why should there be this difference in the sexes of children? We hope that some of our readers will be able to give Dr. Mendes this information. Dr. Mendes further states that "in Judges xiii. 14, a mother is forbidden to partake of anything in the way of wine or strong drink, or to eat anything unclean, when the child to be born is to be a Nazarite, or one separated from the world for special purposes." This undoubtedly has reference to heredity, or the transmission of traits.

Dr. Stewart's reply to the Rev. Dr. Mendes refers particularly to circumcision, whether for ritualistic or sanitary reasons. We think that this question has been pretty thoroughly thrashed out (see articles in the *AMERICAN PRACTITIONER* for January and March, 1914, by Dr. Gustav F. Boehm, Jr., and February, 1914, by Dr. William J. Robinson). We will not, therefore, enter into

an argument on this much discussed question, but refer to Historical Circumcision, which was observed as a religious ceremony by many peoples in different parts of the world and dates to the earliest periods of human history. It was probably a substitute for an original phallic sacrifice intended to increase the fertility of the tribe. The rite retained somewhat of its sacrificial character even after it had been transferred from youth to infancy. It was practiced to persuade the Deity to grant increased fertility in the time of Herodotus, 484-424 B.C. Its value as a sanitary and prophylactic measure was probably not brought to light until it became necessary to apologize for it as a superstition. It is uncertain whether the clans that afterward formed the people of Israel knew the custom before they entered Palestine, and it appears that the clan to which Moses belonged did not originally have the custom; Exodus iv. and Joshua v. In Genesis xvii. we learn that the Ishmaelites practiced circumcision at the age of thirteen. In Genesis xxxiv. we have the story of Dinah, which suggests that the Hivites in Shechem were compelled to accept circumcision by the Israelitish tribes. It prevailed in parts of Arabia before Mohammed, and while not mentioned in the Koran, it has been retained by the nations accepting Islam. There is scarcely a doubt that the custom dates back to Egyptian and through them to Libyan influences. It still prevails among the Mandingos, Gallas, Falashas and many Bantu tribes in Africa, where it cannot be traced to Moslem influence. In Central America, and among the Aztecs of ancient Mexico, circumcision or a somewhat similar mutilation was practiced. It is still in use among the Teamas and Manaos on the Amazon, as well as among the Otaheitans, and nearly all tribes of Australia. A transmission of the rite, therefore, through historic contact cannot be assumed.

Circumcision of females is practiced in Egypt, Abyssinia, Western Africa, Arabia and other countries, and was known to Strabo, 63-24 B.C. Opposition to circumcision began with some of the Hebrew prophets, Jeremiah iv., ix. 25-6. It was the influence in Pauline literature that eliminated this rite from Christian usage as a part of the religion.

NEWSPAPER PUBLICITY AND THE LIMITATIONS OF
RADIUM

Recently much has been written both in the medical and lay press regarding the therapeutic properties of radium. Some may think that too much has been published in the daily papers on this subject. However, this matter must be regarded from more than one standpoint. In the first instance, the public demands information on medical matters, and especially with regard to remedies which appear to be such as will save human life. Thus the popular magazines and daily papers will supply this information, and the medical profession is to some extent impotent to prevent the wholesale dissemination of news of medical discovery which is of interest to the community at large. What the lay press can and should do is to acquire information from reliable sources and to have the details printed in clear and comprehensible language, which should always be edited by a competent medical man. Also, and this is a very important point, physicians or surgeons should be very chary of giving to the public press medical news of importance which is not absolutely authentic; for, if this course be not followed, it is obvious that a great deal of harm may ensue. Still, it must be taken for granted that the ethics of the medical profession have undergone and are undergoing a change. The mystery which used to surround the art and practice of medicine has disappeared, and the man in the street now takes a more or less intelligent interest in the state of his health and in different modes of treatment. Such being the case, it behooves the profession to meet the altered conditions and to educate the public as far as is needful or advisable on these questions. On the other hand, in speaking of a new discovery or remedy, medical men should be discreet, and especially should on no account exaggerate the merits of treatment, whatever it may be.

This advice is *apropos* to the subject of radium, as it has been mainly with the wonderful curative and remedial effects of radium that the lay press regaled their readers of late.

It is fairly well known to those who have closely studied the effects of radium, so far as they have been able with the limited supply at their command, that its action is distinctly restricted. Its

possibilities, it is true, appear to be almost illimitable; but it is with hard facts we have to deal and not with possibilities.

Accordingly the report of the work at the Radium Institute in London, published in the *Lancet*, May 23, 1914, by A. E. Hayward Pinch, F.R.C.S., medical superintendent of the institute, has appeared at a convenient time. It should be noted that the Radium Institute declines to treat operable cases of malignant growths and that radium is only used as a last resort. Nor even in the cases treated apparently with success is the claim made that these are cured, as time alone can demonstrate whether the results are permanent. From the investigations made at the institute, the conclusion has been that the action of radium is purely local, and, therefore, its field of usefulness necessarily limited, and especially so in regard to the treatment of malignant disease. With regard to the treatment of nonmalignant tumors, Mr. Pinch does make use of the word cure. The anesthetic effect of radium in certain superficial conditions attended with pain or irritation seems to have been fairly well established. For instance, painful keloids, pruritus and lichenifications of the skin are among those complaints which have done well under this treatment. Again, indications would appear to point to the fact that in early cases of arthritis deformans, or in those in which the changes are periarticular, administration of a solution of the emanation yields favorable results in patients under forty years of age in particular.

The report of the Radium Institute strongly emphasizes the limitations of radium; that is, so far as existing knowledge of its action is concerned. The report coincides with the views expressed by that greatest authority on the therapeutic effects of radium, the late Dr. Louis Wickham, of Paris. Stated in a few words, radium may be useful in the treatment of some malignant growths, but ere a statement to this effect can be definitely made a considerable amount of time must elapse. Operable, malignant growths should be removed promptly, and no time wasted in treating with radium.

In short, with regard to the treatment of cancer, radium should be used only as a last resort. The report of the Radium Institute is greatly to be commended in that no exaggerated language is indulged in, but it is a sober and judicial review of the situation as

regards the therapeutic properties of radium gathered from the experience of the past year.

THE RECENT DEATH RATE OF PULMONARY TUBERCULOSIS

An article on "Has the Tuberculosis Death Rate Declined Recently," by Dr. Mays, of Philadelphia (*Medical Record*, April 25, 1914), contains statements and deductions which may be surprising to those who have been led to believe by apparently reliable authorities that the death rate of pulmonary tuberculosis had been enormously diminished during the last decade by reason of the inroads which have been made on it by the present prevention crusade, which has been in active operation during the last ten or twelve years.

The main body of that paper consists of statistical reports of the mortality of this disease gathered from thirty of the largest American cities, from a number of the largest German cities, and from England and Wales, from 1882 to 1911 (Hoffman)—a period of thirty years—and is sufficiently comprehensive to give a fairly reliable estimate of the practical value of this crusade.

The whole period of investigation is divided into halves of fifteen years each; the first half includes that period in which nothing direct was done to prevent this disease, and the second half that period in which the prevention crusade was in full operation.

The analysis shows that the total decrease of the death rate during the first half, when not the slightest attention was given to the direct suppression of the disease, was 25.30 per cent.; while in the second half, when the world wide crusade was in full sway, seconded by unstinted amounts of money, the total decrease in the death rate was only 13.17 per cent., or a decrease of 12.13 per cent. greater in the first half than in the second half period. If these figures convey any meaning at all, they indicate, not only the uselessness, but the absolute hurtfulness, of the measures thus employed in crushing this disease.

This is not only a great disappointment to the many who have given financial assistance, and to those who have liberally contributed their best efforts to the furtherance of this cause, but it is a source

of keen regret to a large number who sincerely believe that consumption is preventable by genuine preventable means, and who fully realize that the glowing but unfulfilled predictions which were made at the time when this crusade was launched will act as a bar toward enlisting interest in a better founded enterprise.

It is to be hoped, however, that before very long there will be a return to a better understanding of the elements of prevention, and that greater attention will be devoted to a study and investigation of the principles of sanitation which formed the basis of prevention which prevailed in this country immediately before the advent of the present crusade, and which exerted a profound reducing power on the mortality of this disease.

EDUCATING THE PUBLIC IN HEALTH MATTERS

With the death rate of this city less than fourteen per thousand, the health authorities find it increasingly more difficult to bring about further improvements. Despite the steady reduction in the general death rate, the Health Department has for some years called attention to the disquieting increase in the death rate of persons over forty years old. This increase affects particularly diseases of the heart, kidneys and blood vessels, and cancer—a group, it will be seen, concerning whose prevention and control but little has been done by health authorities. It will be clear that this inactivity is due, not to any lack of interest, but rather to the inherent difficulties of organizing and carrying on effective administrative efforts against these diseases.

Pioneer in so many health activities, the Department of Health of the City of New York has just organized a Bureau of Public Health Education, as the principal weapon with which to effect further reduction in the death rate. The activities of this bureau, as at present contemplated, are:

1. Publication of the weekly and monthly bulletin, of monographs and reprints on special phases of public health work, of leaflets for popular instruction, of press bulletins, etc.
2. Illustrated lectures, both independently and in connection with existing agencies on various public health topics.
3. Traveling exhibits of the Health Department activities, to be

shown in vacant stores, schools and wherever opportunity offers for this form of health education.

4. The preparation and exhibition of moving picture films on topics of health and hygiene. Also the display of "health slides" at the moving picture theaters.

5. Organization and administration of a school of sanitary science in cooperation with existing teaching institutions, for the training of public health workers.

6. Administration of the library of the Department of Health, and of a "Journal Club" in connection therewith, for the careful study of current public health literature by members of the department.

The establishment of the Bureau of Public Health Education marks an important step forward in the development of the Health Department's activities, and serves to emphasize their educational character. A number of these activities, to be sure, had already been carried on in the past; most, however, are entirely new. Their collection into a single bureau makes for ready coordination with other public health and educational agencies and for intelligent administration.

SELF MEDICATION

We have had household remedies for all of the commoner ailments since the early history of man. The uses for these remedies have been empirical, or without a true knowledge of what they were expected to do in order to correct a complaint. No knowledge of the causes of disease was or is possessed by those not educated in medicine, nor is this knowledge usually regarded as necessary in ordinary complaints. Symptoms were treated; these relieved, the patient was satisfied, if not cured. By accident, mainly, certain substances were found to relieve certain symptoms; disease as such was unknown. These remedies were and are still thought all sufficient, while a cure is often thought effected with the disappearance of the symptoms. Hence, to relieve diarrhea, the trouble was cured. Infusion of oak bark was a sovereign remedy for diarrhea, because of its astringent properties. That diarrhea might supervene from irritant properties of foods, climatic conditions, cold or heat, changed conditions in the intestinal secretions,

an excess of bile poured into the bowel, increasing peristalsis, or a scanty secretion, fermentation of the contents of the bowels, an absence of the pancreatic secretion, nervous influences, etc., were and are not known to the average person.

Diarrhea is, in fact, merely a symptom of a changed condition in the intestinal canal, or unusual changes in the contents or secretions of the stomach; and it is obvious, therefore, that the proper treatment is to relieve the cause of the disturbance, rather than to merely check the discharge; and to effect this a knowledge of anatomy, physiology, chemistry and of medicines in general are essential, and this knowledge is not nor cannot be possessed by the layman.

What is true of diarrhea is also true of other conditions: headaches, the pain of rheumatism, coughs, constipation, sleeplessness. How, then, can we expect to find a panacea for these conditions? It is true that a timely use of some domestic remedy may for a time at least seem to bring about permanent relief, but this is rarely true, for the cause of the complaint may thus be masked, allowing changed conditions, at first probably trivial, to become fixed, and thus burdening the subject with functional or organic disease, which may bring about a condition of invalidism, difficult, if not impossible, to cure.

Self medication is, therefore, not advisable. Even the physician is not competent to treat himself, for he exaggerates his symptoms, and thus loses sight of the cause of his complaint.

COMMISSION OR OMISSION

We wish to apologize to our readers for a mistake in print, second line opposite page 270, in the May issue of the PRACTITIONER. The Greek word *λαπαχτικός* should have appeared. The editor is usually scolded for these lapses, but the compositor and the printers' proofreader are, *we* think, more often to blame. There is, however, a human element in getting out a medical journal, which plays a part equally important as in other affairs, so we will have to charge this lapse to experience. The letters appearing were inserted for the purpose of holding space until Greek type could be secured, but in the hurry of "makeup" the change was not made.

DIGEST OF CURRENT MEDICAL LITERATURE

Laryngeal Tuberculosis.—St. Clair Thomson (*British Medical Journal*, April 11, 1914; *New York Medical Journal*, May 2, 1914) presents results of sanatorium treatment of laryngeal tuberculosis. He cites two opinions regarding its prognosis: the older one, that it is almost always fatal; and the newer one, that it is not very fatal and that many recoveries follow treatment. He urges that both views are wrong, the truth being that, while the condition is very serious and often fatal, recovery can be expected in a fair proportion of cases under proper treatment. Such treatment, in his experience, is chiefly residence in a sanatorium, with "the removal from vitiated and dusty air, the suppression of alcohol, the limitation or abolition of tobacco, the vocal rest, and all the improvement in general health brought about by the regular existence, the abundant nourishment, the rest and exercise, and the other factors of the simple life under constant medical supervision." Under such conditions alone, "the congestion and catarrh subside, the dirty ulcers clean, irritation and cough disappear, and all our symptomatic armamentaria of sprays, inhalations, lozenges, powders, insufflations, paints, caustics and intratracheal injections are uncalled for." His statistics show that of thirty seven cases of arrest of tuberculous laryngitis, no less than twenty two healed without any direct treatment. In the remaining fifteen, the galvanocautery was used to bring about cicatrization. He used tuberculin in a number of cases, but without any marked beneficial results. In a total of 693 cases of tuberculosis of the lungs, 178, or 25.6 per cent., had involvement of the larynx. In this series, women were somewhat more numerous than men. Sanatorium treatment of the 178 cases gave nearly 21 per cent. of arrests, about 35 per cent. were improved, an equal number remained unchanged, and 9 per cent. grew worse. Mortality of cases without laryngeal disease was 26.5 per cent., of those with such involvement 50.9 per cent.

Veronal Poisoning.—E. Russell and George Parker (*British Medical Journal*, April 18, 1914) first saw their patient after he had become unconscious. He was deeply comatose, all means to arouse him failed, the pupils were small, reacted to light, and subsequently became somewhat dilated. The extremities were flaccid, but not paralyzed. No reflexes could be obtained. His color was natural, the skin moist; there was about one degree of fever, the pulse was

regular and somewhat rapid, and the blood pressure was not high; the lungs were normal, except for the accumulation of bronchial fluid. Death ensued, without return to consciousness, after a period of three days. Postmortem examination showed nothing characteristic. By the method of Willcox veronal was isolated from the urine, 0.31 gram being obtained in crystalline form, 0.0235 gram from the viscera, and 0.0385 gram from the brain. The authors estimate that about fifty grains of the drug must have been taken. A second case is reported by J. M. H. Munro of a healthy young woman, twenty years old, who took 125 grains at once with suicidal intent. Her symptoms were closely similar to those described in the previous case, but lavage and treatment with coffee and strychnine led to recovery after a period of unconsciousness lasting three and a half days. From one ounce of urine, withdrawn forty eight hours after the drug was taken, Munro isolated twenty five mgm. of purified crystalline residue, which was shown to be veronal. The case is remarkable for recovery after so large a dose. The author cites a number of other cases from the literature to show the variability of the fatal dose, so little as fifteen grains having proved fatal in at least one case. A third case is reported by Mitchell Innes Dick, ending in recovery after a dose of thirty five grains.

Digitalis.—In the September number of *Merck's Archives* (from the *Maryland Medical Journal*) Wilfred M. Barton presents some observations on the action of digitalis, summarizing as follows: (1) Historically considered, it is interesting to note that the lately discovered fact that digitalis depresses the conductivity of the bundle of His, thus acting upon the heart by lowering one of the important functions, tends to restore the older view, that, essentially considered, digitalis is a sedative much more than a stimulant to the heart. (2) Physiologically considered, that is to say, upon healthy animals under the conditions of laboratory experiments, digitalis slows the heart through vagus stimulation, increases the force of the systole, diminishes the extent of diastole, constricts the vessels and raises the bloodpressure. A depression of the healthy bundle has not equivocally been made out. (3) Clinically considered, it is found that beneficial therapeutic results from digitalis found almost exclusively in that particular form of cardiopathy which has received the name of auricular fibrillation. In this condition the effects of digitalis are quite marvelous. In auricular fibrillation the bundle of His may be assumed to be a condition of pathological excitability and irritability, since normal impulse formation

is replaced by impulse formation at multiple auricular foci. The action of digitalis in auricular fibrillation is to depress the function of the bundle of His, and thus to reduce the formation and transmission of pathologically formed impulses. Vagus stimulation plays no part in the slowing of the heart, except in non-fibrillating cases. Whether or not the force of ventricular contraction is increased is not known. It is not inconceivable that digitalis may produce a simultaneous depression and stimulation of different parts of the cardiac musculature.

Why Sodium Citrate Prevents Curdling of Milk.—Work, say A. W. Bosworth and L. L. Van Slyke (*American Journal of Diseases of Children*, April, 1914; *Journal A. M. A.*, April 18, 1914), previously done by the authors led them to test the matter by an experimental study of the action of sodium citrate on milk. They found that the addition of sodium citrate to normal milk increases the amount of soluble calcium in the milk, this increase resulting from a reaction between the calcium caseinate of the milk and sodium citrate, by which is formed sodium caseinate (or calcium sodium caseinate) and calcium citrate. The reaction is reversible. The curdling of milk by rennin is delayed by the presence of sodium citrate; when there is added 0.400 gm. of sodium citrate per 100 c.c. of milk (equal to 1.7 grains per ounce), no curdling takes place. The curd produced by rennin in the presence of small amounts of sodium citrate (0.050 to 0.350 gm. per 100 c.c., or 0.20 to 1.5 grains per ounce) increases in softness of consistency as the amount of sodium citrate in the milk increases.

The results of this work indicate that at the point at which rennin fails to curdle milk, in place of the calcium caseinate of normal milk, there is a double salt of calcium sodium caseinate; this double salt, when rennin is added, is changed to a calcium sodium paracaseinate, which, owing to the presence of the sodium, is not curdled. The practice of adding sodium citrate to milk at the rate of 1 to 2 grains of citrate per ounce of milk appears, in their judgment, to have a satisfactory chemical basis in the reaction between the sodium citrate and calcium caseinate of the milk. The amount added is governed by the object in view, viz., whether it is desired to prevent curdling or only modify the character of the curd in respect to softness.

Spinal Transplant.—H. B. Thomas (*Journal of the American Medical Association*, April 4, 1914; *N. Y. Medical Journal*, April 18, 1914) pleads for fair judgment, favorable or unfavorable, of

the bone transplant of Albee for tuberculous spondylitis. He cites ten cases in which no attempt was made to choose good risks; operation was performed in each. He states the following conclusions: 1. The operation is not severe. It is double; the incision is longer than in most; yet recovery from the immediate effect is quick and suffering is not great. 2. Cases with discharging sinuses near the field of operation should not be refused, unless the sinus lies within the field of incision. 3. Pulmonary tuberculosis is not a contra-indication in all cases. 4. If the ends of the transplant are loose, they absorb; if they extend beyond the spinous process, the portion not attached will absorb back to the firm attachment. 5. Loose ends and broken ends, as in the middle of a bone graft, grow through fixation by position and rest. 6. Three cases with Pott's paraplegia have not markedly improved. The longest time since operation in a paraplegic case has been six months, during which time the position has been good, and such as to give hyperextension. 7. Young patients do better than adults. 8. The operation has a distinct place in the treatment of selected cases of tuberculous spondylitis. 9. Albee's method is preferable in most cases, on account of the site of the disease and the size of the cyphosis. 10. Operation should be followed by months of perfect quiet for the transplant.

Inflammation and Tumor Formation.—Charles F. M. Saint (*British Medical Journal*, April 18, 1914) analyzes both of these conditions, including the formation of malignant tumors, and seeks to establish a close parallelism between the processes. He suggests that tumors should be classified into infective and noninfective, rather than into simple and malignant, the former including the malignant growths and some definitely infective tumors, such as papillomata; the latter including only the simple tumors. He regards inflammation surrounding the tumor as definitely a part of the tumor process, and not merely a reaction of the tissues to irritation. He finds that inflammation and tumor formation are quite analogous as regards the greater part of their general and local symptomatology, signs and course, even to the occurrence of resolution, fibrosis and calcification. All of the latter factors with different relative degrees of frequency in the two general classes of process. Transmission occurs along almost identical lines; direct transmission by the natural passages, extension by continuity, extension through the lymphatics and through the blood stream. Even the sites of predilection for both inflammatory and tumor processes are much the same. "Thus the commonest parts to be affected in both inflammation and tumor growth are the upper ends of the tibia

and humerus, and the lower ends of the femur and radius" in the case of young bone, and periosteal tissues in older bone.

Open Treatment of Fractures.—Dr. George A. Hendon, of Louisville (*New York Medical Journal*, May 2, 1914), states that the indications for the use of the plate are as follows: 1. In fractures that cannot be reduced by ordinary manipulations. Such situations developed frequently in impacted fractures and in fractures where one fragment is very much shorter than the other and overriding exists. 2. Fractures that are difficult to maintain in reduction, as in those where a process of bone is broken off. For example, a condyle of the humerus or the olecranon, and cases where the muscular attachment is so strong and the lines of force so directed as to pull the fragments apart, as in the femur. 3. Delayed union. 4. Where good cosmetic effects are especially desirable, as in the clavicle or forearm of young women. 5. In fractures communicating with a joint wherein imperfect alignment or overproduction of callus is likely to seriously interfere with function. The mortality of the operation *per se* is a negligible quantity, especially if the operation is resorted to in the recent period after the fracture and performed under the proper restrictions.

Pasteurization in Bottles and the Process of Bottling Hot Pasteurized Milk.—Ayers and Johnson (*Journal of Infectious Diseases*, March, 1914; *New York Medical Journal*, May 2, 1914) note the advantage of pasteurization in bottles; that infection after pasteurization is prevented. In ordinary methods there is a great opportunity of infection from coolers and in bottling. The chief disadvantage is the cost of the new method. The authors undertook to determine whether equally good results in the reduction of bacteria can be obtained by pasteurizing milk in bulk and by bottling it while hot. In their method milk is pasteurized by the ordinary holder system at 140 degrees F. for thirty minutes. It is then placed in bottles that have been steamed for two minutes. After filling, the bottles are placed in a refrigerator room and cooled by air. From a sanitary standpoint, one great advantage of bottling hot is the fact that hot pasteurized milk may be bottled in hot bottles, so that bottle infection is avoided. The chief disadvantage is that the air cooling process requires several hours.

Serotherapy of Acute Poliomyelitis.—Netter (*Bulletin de l'Académie de Médecine*, Paris, April 7, 1914; *Journal A. M. A.*, May 3, 1914) makes intraspinal injections of the serum from persons who

have had poliomyelitis at some time in the past, assuming that the serum contains antibodies which will have a therapeutic action. In one case reported an athletic man of thirty four developed severe acute poliomyelitis, but was apparently recovering, when, the eighth day, his legs became paralyzed, with retention of urine and loss of sensibility up to the costal arch, all showing a progressive course, with an extremely serious outlook. The next morning 7 c.c. of serum from a person who had had poliomyelitis seven years before were injected into the spinal cavity. By this time the anesthesia reached to the nipples, but by evening of the same day the patient could "feel his toes," and complete recovery gradually followed. He was given ten injections in eleven days, a total of 66 c.c. The serum came from eight persons. Netter has applied this treatment before in four other cases, but with such timid technic and so few injections that, although marked benefit was apparent each time, yet some paralysis was left or the patients succumbed sooner or later.

Symptoms of Rheumatism in Childhood.—H. P. Dawson (*Southern Medical Journal*, April, 1914) says that in a child the articular phenomena of rheumatism becomes a matter of merely secondary importance; indeed, a child may suffer severely from rheumatism who has never had a pain in its joints. In England much stress is laid upon the presence of subcutaneous fibroid nodules as a manifestation of rheumatism, but the rheumatic nodule appears to be rare in America. He calls attention to the relation between tonsillitis, chorea and rheumatism, and refers to the significance of more or less vague pains in the limbs and elsewhere. Stiff neck may be the earliest manifestations, and a common trouble in rheumatic children is headache. The rheumatic child is, above all, a nervous child; rheumatism is frequently associated with night terrors, somnambulism habit spasm and lenteric diarrhea. One other phenomenon worthy of note is the association of red hair with rheumatism and rheumatic heredity.

Carcinoma of Lower Lip.—Bloodgood's (*Surgery, Gynecology and Obstetrics*, April, 1914) article is an analysis of about 200 cases. Briefly, he says our experience shows that one should make the attempt at the radical removal of the lesion of the lip and glands of the neck at any stage of the disease, whether the lesion is primary or recurrent. No necessary mutilation should be shunned. Every now and then one will accomplish cures in apparently desperate cases. This, however, is surgery as a last resort, and such surgery would not be necessary if patients were educated to seek advice

early and if the profession were trained to perform the proper operation in this early stage. In fact, we have the evidence here to show that lesions of the lower lip, properly excised within one month from their onset, should result in almost 100 per cent. of cures. The failures to cure in this group of 200 cases are due, not only to delay on part of the patient, but to bad treatment on part of the profession. These two evils can and should be corrected. It is really a very simple matter.

Significance of Pain in the Right Iliac Fossa in Young Women.—Dr. Randolph Winslow, of Baltimore (*New York Medical Journal*, May 2, 1914), believes that unless the symptoms of appendicitis in young women are frank and clear, the condition is probably something else. Pain and tenderness in the right side, without rigidity, elevation of temperature and leucocytosis, was usually not appendicitis. Apparently severe and long continued pain in the right side in girls was more likely to be neurotic than appendicular. Pain might also be reflected from the pelvic organs or some of the other viscera, and the primary seat of the disturbance might be determined by a more careful examination. He thought we frequently operated too hastily after a diagnosis of appendicitis, without considering sufficiently the other possibilities in a case.

Germicidal Action of Ultraviolet Rays.—Houghton and Davis (*American Journal of Public Health*, March, 1914) found that the ultraviolet rays produced by the Cooper-Hewitt mercury arc have a strong bactericidal action. Certain species of bacteria in aqueous suspension, including spore forming organisms, are killed by exposure to rays. Molds, however, are only partially destroyed by the ultraviolet light. The action seems to be a photomechanic process, and is in all probability due to absorption of the ultraviolet rays by the bacterial protoplasm. Water, wines, many inorganic and a number of organic substances in aqueous solution can be sterilized by intraviolet light. Bacterial vaccines require a prolonged action. Proteins and other bodies of high molecular weight interfere with the action of the rays. Turbidity, both organic and inorganic, has a similar action. Color, within certain limits, seems to have no influence.

The Management of High Bloodpressure.—F. C. Rice (*N. Y. State Journal of Medicine*, April, 1914) declares, in a summary on treatment of high bloodpressure, that the systematic use of the sphygmomanometer has shown that the treatment of a large per-

centage of all cases after forty years, from any cause, must include treatment of arteriosclerosis. That the sphygmomanometer has also shown the futility of depending alone upon arterial depressors. That a certain percentage of cases, in order to carry on their metabolism, even imperfectly, must maintain a relatively high tension, and it may be our greatest duty to aid them in sustaining this.

In the writer's opinion, the treatment of arteriosclerosis is the treatment of chronic interstitial nephritis.

Acids and Nervous Excitability.—H. Elias (*Wiener Klinische Wochenschrift*, January 8, 1914) points out that acidosis, with an increased excitability of the nervous system, has occasionally been observed in nutritional disturbances of infants or in tetany of adults. He contends that both are needed processes. In animal experiments the author has succeeded in producing an increased excitability of the nervous system, which was demonstrable electrically and mechanically. This always followed the intravenous and oral application of lactic and hydrochloric acids, as well as acid sodium phosphates. Where the intoxication was severe, spontaneous convulsions would occur.

Blood Serum After the Application of X-Ray.—S. Wermel (*Münchener Medizinische Wochenschrift*, February 10, 1914) finds that the action of X-ray causes horse serum to be photoactive. Horse serum causes the same cutaneous and leucocytic reactions in animals as direct application of the rays. The therapeutic value of the X-ray serum opens up many possibilities.

Vaccination Against Hay Fever.—Hay Fever treatment by active immunization with a pollen vaccine, whether judged by statistics or by the experimental method, Freeman says (*Lancet*, London, April 25, 1914), has succeeded, and the immunity thus acquired seems to last for one year, at least, after treatment has been discontinued.

THERAPEUTIC PROGRESS

Crotalin in Epilepsy.—A study of the therapeutic value of crotalin in epilepsy is reported by N. S. Yawger, Philadelphia, in the *Journal A. M. A.*, May 16, 1914. The officers of the Pennsylvania Epileptic Hospital and Colony Farm have been besieged by requests for its trial by patients and their families, due to the glowing reports in the lay press. For the purpose of study, a group of patients having idiopathic epilepsy was selected for three months' experiment, and after this came the work of leveling up, as he says, to determine as nearly as possible the effects and value of the drug. It proved to be a difficult problem. A distinct psychic influence is often noticed in the treatment of epileptics, and in view of this the purpose of the injections was kept as far as possible from the knowledge of the patients. Yawger reports six cases thus treated and says: "Briefly stated, our experience with crotalin in the treatment of six cases of idiopathic epilepsy was this: Two patients were uninfluenced; two were worse during the treatment; one, early in the course, developed such intolerant toxic symptoms that further experimentation was unjustified, and the last patient died two and a half months after treatment. While we did not feel that death resulted from the use of crotalin, the patient's disease certainly was not benefited by the treatment."

Treatment with Digifolin.—Erich Grabs, *Berliner Klinische Wochenschrift*, February 2, 1914, *N. Y. Med. Jour.*, May 9, 1914, concludes that digifolin, applied internally, subcutaneously, intramuscularly or intravenously, has given in most cases a very excellent digitalis effect. In all cases of mitral decompensation, myocardial degeneration, and in acute dilatations of the heart, the action of digifolin was that of a strong digitalis preparation. In urgent cases, complicated with dyspnea and edema or nephritis, one gram of digifolin, combined with one gram of diuretin, given three times daily, with a pause of three days, during which time two pearls of euphyllin were given, has been followed by a decided improvement. In case of danger, the subcutaneous administration of one or two ampules has the same effect as an intravenous injection of any of the other digitalis preparations. He has not observed any untoward effects even after administration by the stomach; after subcutaneous or intramuscular administration, about one third of the patients complain of pain lasting about one hour. Even after the intravenous injection of three ampules there is no danger, in contradistinction to the dangers after strophanthin. Digifolin is dispensed commercially in tablet or ampule form, each containing one gram of folia digitalis titrata.

Pituitrin.—Drs. A. J. Rongy and S. S. Arluck, of New York, *New York Medical Journal*, May 2, 1914, state in the following conclusions:

1. Pituitrin does not induce labor pains.
2. It should not be used in the early part of the first stage of labor, for its action is too transient.

3. It should not be used in complete inertia, because of danger of rupture of the uterus.
4. It is contraindicated in cases of dystocia due to malposition or contracted pelves.
5. It should never be used in cases in which a sudden rise of blood pressure may prove dangerous.
6. A single dose of pituitrin may be used as an adjuvant in cases where pregnancy is interrupted, either by catheter or bag, and only when contractions of the uterus have already set in.
7. It should be used only in cases in which the cervix is dilated or dilatable and the presenting part engaged in the pelvic outlet.
8. It should be used cautiously in cases in which the fetal heart sounds are feeble or irregular.
9. It should never be used unless a general anesthetic is within easy reach, for the contractions may become so violent that rupture of the uterus becomes imminent.

Intravenous Injections of Sodium Salicylate in Rheumatic Affections.—L. A. Conner, *Medical Record*, February 21, 1914, finds that, with proper technic and a chemically pure preparation, administration of sodium salicylate is safe, painless and easy. So administered, it seems to have a much more pronounced analgesic effect than when given by the mouth. At present this method seems to include cases in which the drug is not well borne by the stomach, which show little or no improvement under the usual mode of administration, cases with beginning heart complications, of severe rheumatic inflammation of the eye. The author's experience is that it is necessary to give the salicylate in doses of ten, twenty or even thirty grains.

Chaparro Amargosa in the Treatment of Amebic Dysentery.—P. I. Nixon, San Antonio, Tex., *Journal A. M. A.*, May 16, 1914, describes the chaparro amargosa bush and its medicinal history. His interest was stimulated by the suggestion and experience of Dr. J. W. Nixon, of Gonzales, Tex. He describes treatment and reports ten cases. All of his patients were cured by the treatment, and so far as can be determined, there has been no recurrence. In only one case was a living ameba found in the stools after treatment was begun. He says: "Experimental data prove the amebicidal action of chaparro amargosa no less surely than do the clinical results, the drug undoubtedly having an elective affinity for the protoplasm of *Entamoeba histolytica*."

Squash as a Diuretic.—A. Ph. Kakovsky, *Roussky Vrach*, December 7, 1913, presents a clinical study of squash in nephritis. A diet of squash causes profuse diuresis, diminution of the pathological elements of the urine, disappearance of edema, a rather profuse but painless diarrhea. It does not interfere with nutrition when eaten with butter. This therapeutic effect the author attributes to the action of the squash juice on the passive function of the kidneys, whereby the osmosis between the blood and the urine is increased and the secretory apparatus is put at rest. Cases of nephritis are cited which apparently support these views.

COMMUNICATIONS

To the Editor of THE AMERICAN PRACTITIONER:

An old proverb says "It is never too late to mend," and I want to mend my ways by redeeming a half-promise to take up two editorials in your journal, both penned by a highly esteemed friend, Dr. Douglas H. Stewart.

The first editorial was entitled "Did Moses Foresee the Eugenic Paradox?" and in a footnote you say "that the term is used to describe the condition: the Hebrew race furnishes fourteen per cent. of immigrants, but nearly thirty three and a third of all mental defects. The race is nonalcoholic, but intermarries blood to blood."

The fact that the Mosaic law has enactments prohibiting marriage between certain degrees of kinship shows that Moses was quite aware of the evil results of too close intermarriage. Whether he carried his enactments to the extent that modern science desires is quite another thing. Modern science has a way of expressing herself, and then everybody is supposed to bend reverently and say "Amen," as if modern science is always correct. But every morrow is apt to dethrone the authority of yesterday. And I think that the present day statistics will prove that the prohibitions of Moses are practically sound.

Marriage with an inferior race may be dangerous. Marriage with a degenerate race must be dangerous. We have a tradition that one of the sons of Moses, by his Midianite wife, was affected by maternal teachings and descent. And another tradition points out that the section which treats of a degenerate son follows immediately the section which permits marriage with a captive woman, to indicate the possibility of evil results from the marriage of a member of a spiritual nation dedicated to be a *goi kadosh*, or "holy nation" with one who was a member of a pagan nation given to idolatry and its obscene practices. Atavism is a branch of eugenics.

The deep psychological insight of Moses is further evidenced in that remarkable little passage concerning marriage with a captive woman. Mark its humane consideration and sympathy. The captive woman is to be granted a whole month to mourn for her parents, during which time she is to reside under the protection of her captor, who was not allowed to marry her until the end of the month. Then she became his regular wife, with the remarkable provision that if at any time she displeased him she was nevertheless never to be sold as a slave, but should be free to go wherever she wished, if she wished to go.

The second article was on Mosaic Circumcision. Moses did not oppose it, for in Leviticus, Chapter 12, it is ordained.

The article further states: "Stupid persons invariably jump to the conclusion that the rite was omitted (during the forty years in the desert) because the people were marching all the time. In Joshua, Chapter 5, verse 7, we find it stated that they were not circumcised "ba-derect," "by the way," or "on the journey." The objections of Dr. Stewart to operators whose hands are not surgically clean are well taken. But in this very morning's paper we find objection made to manicurists whose hands and instruments

are surgically unclean. This does not mean that manicuring should be abolished.

May I, however, invite correspondence or editorials upon totally different matters in which I am interested by reason of certain studies.

Every individual has a physical, a mental, a moral, an esthetic and a spiritual nature. Each nature affects the other. All these natures are not equally developed in any one person. Some people have one of these natures much more developed than other people have them. Can I obtain from your readers any information that will establish the contention that women during their menstrual periods and the climacteric are subnormal in any or in all of these five natures?

I have tables, etc., which declare that forty-six per cent. are subnormal physically, data to show mental and moral subnormality, and data asserting that women are specially abnormal in religious or spiritual matters at such periods.

Will some of your readers inform me where I can obtain further information in these directions and what their own experiences in practice have taught them?

Another point is this:

In Judges, Chapter 13, Verse 14, what I would call the science of Embryology is clearly indicated. For it forbids a mother to partake of anything in the way of wine or strong drink, or to eat anything unclean in a case where the child to be born is to be a Nazarite or one separated from the world for a special purpose and therefore not allowed to cultivate a taste for wine or strong drink or for unclean food.

That a child of parents addicted to inebriety will himself be inclined to dyspomania is of course well known.

What I want to ask is this: Can any of your readers indicate any publication or data showing that the health of the child, youth, maiden, man and old man is influenced by his embryo life? How many men and women become invalids through carelessness of the mother while they were in the embryo, just as a house betrays decay all the sooner if erected on faulty foundations or constructed with inferior material? If it be true that the subject really requires consideration, then should not our medical societies prepare a leaflet for the guidance of a mother during the months preceding childbirth?

One other subject I would like to ask about in the hope that some of your readers can throw some light upon it: In the twelfth chapter of Leviticus it is indicated that a woman is subnormal for forty one days after the birth of a male child and eighty days after the birth of a female child. Can any of your readers direct me to literature that will illustrate the difference between subnormality after the birth of a male or female child?

H. PEREIRA MENDES.

106 Central Park West, New York City.

To the Editor of THE AMERICAN PRACTITIONER:

SIR: My reading of the Rev. Dr. Mendes' letter conveys the impression that the innate courtesy which is one of his well known characteristics is pleading for mercy on my behalf. He is an up to date Roger de Coverley, repenting the idea that "much may be said on both sides."

My editorial (by courtesy) asked the question, "Did Moses Foresee the

Eugenic Paradox?" And both Dr. Mendes and I have agreed that he certainly did. The records show that arrangements of an efficient sort were made by which new (and non-Hebraic) blood was to be introduced into the nation. The teaching was inculcated by personal example, for the pioneer, founder, formulator and writer of the Mosaic law was "slow of speech," but talk was unnecessary in view of the fact that he himself married two wives of Gentile birth: and then he wrote a law telling the people at large how they could get the same kind of wives and get rid of them, after due trial, thus anticipating the idea that divorce should be granted on application. His idea was that the marriage in question should continue or discontinue on the meagre grounds of "like" or "not like."

As to circumcision (on the journey), it was not omitted because of any question of transportation so far as infants were concerned, for the half million or more male infants must have been carried in any event. The real difficulty was in moving the recently delivered mothers. And the facts are (according to the records) that while Moses inculcated the practice which was handed down from Abraham, yet he personally would not and did not circumcise anybody. As to manicuring, that is a little beside the question, but it should be abolished, of course, at least until manicure instruments are made in one piece and capable of being boiled without coming apart. From my standpoint, it should bar a manicure from practising his or her calling if his or her instruments cannot be made surgically clean. There is a death rate, unnecessary but constant, as accompaniment to the present system of manicuring. Such results as sepsis and gangrene do demand a rigid inspection of the technique and toilettes of both Mohls and Manicurists. Possibly the Hall of Fame may yet set apart a niche for that hero who lays down his head in peace and gets a shave and a hair cut with unboiled razor and hair clippers. Not a wave of trouble rolls across his peaceful breast because a little white sign in the window declares antisepsis, and then too a large sterilizer furnishes hot towels. Be that as it may, no one, for ritualistic or sanitary purposes, has any right to submit a defenseless infant to an operation, at the same time neglect all protective measures and open wide the gates to infecting germs. Let the same care be taken with circumcision as with laparotomy, because most surgeons are agreed that small operations may eventually give the most trouble.

DOUGLAS H. STEWART, M.D.

May 5, 1914. New York City.

MISCELLANY

AMERICAN CONTRIBUTIONS TO MEDICAL SCIENCE

We find in *Harper's Magazine*, June, 1914, a most interesting article on this subject by Burton J. Hendrick. It should be read entire by physicians, especially as it gives a most faithful—but not complete—list of those who have given the most noted contributions to medical science. No attempt will be made to group these in chronological order; in fact, Dr. Alexis Carrel is the first to be mentioned.

Dr. Carrel's work has been so remarkable and so much discussed that we are all more or less familiar with it in a general way, and aware that he received the Nobel prize less than a year since. Fortunately for American medicine, Dr. Carrel is to continue at the Rockefeller Institute in New York, where his most notable work has been done.

Theobald Smith, of Harvard Medical School, is regarded by Hendrick as unquestionably the greatest living American Medical Scientist. He established the fact that the tick is the infecting agent in the spread of Texas cattle fever. From this discovery followed that of the transmission of other diseases—malaria, yellow fever, typhoid, bubonic plague, sleeping sickness—discoveries which completely revolutionized sanitation and medicine, the importance of which we have only recently begun to realize.

The discovery of anesthesia belongs to the United States, there being four claimants, all having been born in this country: Crawford Long, of Georgia; Horace Wells, of Connecticut; Charles T. Jackson, of Massachusetts, and William T. G. Morton, of Massachusetts. Long and Wells worked with nitrous oxide, Jackson and Morton with ether. We are all more or less familiar with the history of anesthesia, of how Dr. John C. Warren, at the Massachusetts General Hospital, operated on a patient suffering from a vascular tumor on the neck, the operation lasting for thirty minutes. The patient declared upon regaining consciousness that there had been no pain whatever. It would be impossible to realize a greater boon to suffering humanity than anesthesia.

Dr. J. Leonard Corning made known spinal anesthesia in 1884.

Recently Dr. George W. Crile has evolved what he terms anoci-association anesthesia, and Dr. S. J. Meltzer, of the Rockefeller Institute, intratracheal anesthesia—procedures much discussed in recent medical literature.

It is only recently that we have fully realized the value of the studies, extending over a period of fifteen years under every possible kind of discouragement, by Dr. William Beaumont on digestion. His studies were carried on at a remote outpost of civilization, making 238 observations, the accuracy of which serve as almost miraculous examples of patient and persevering research.

Dr. Oliver Wendell Holmes determined the contagious theory

of puerperal fever in 1843, a year before Semmelwiess was graduated.

In 1872 Dr. Joseph O'Dwyer, of New York, perfected intubation, before which the frightful mortality from diphtheria and scarlet fever ranged from 40 to 50 per cent., while the sufferings of the children in the New York Foundling Asylum, where Dr. O'Dwyer first applied his operative treatment, was frightful.

Dr. Walter Reed, in 1898, demonstrated the transmission of yellow fever by the *stegomyia* mosquito. Later Dr. Simon Flexner, of the Rockefeller Institute, New York, gave the world a cure for cerebrospinal meningitis. Dr. Hideyo Noguchi, of the same institution, perfected a diagnostic test for syphilis, which is much simpler of application than the Wassermann; while Dr. Flexner only recently announced the discovery of the cause of infantile paralysis. Dr. Rous's (also of the Rockefeller Institute) work on cancer has upset many accepted ideas concerning this dread disease.

And so we might continue to enumerate discoveries brought to the world by American medical men as brilliant as any mentioned above—discoveries in medicine, surgery and collateral branches—but space forbids. Surely the medical profession of America is to be congratulated. This work bulks large, but there is more to come, for the end is not yet.

APPRECIATION

If an individual does not appreciate art, science, literature, it does not follow that they are valueless. It may be that this particular person is not mentally equipped to see or comprehend art or science. If ninety commend, enjoy, admire, and ten condemn, detest and decry, it should be, has been accepted that the ninety are more surely right than the ten; for not only in art, science, literature, but in war, as elsewhere, the majority have ruled. And this is not might against right merely, but the result of education, travel, observation and sane judgment; for surely each of the ninety are at least as sane as are they of the ten. It is true that occasionally a mighty mind and soul is loaned the world for the short space of a lifetime, and that such a personality has reversed the will and opinions of the majority, such, for example, as Christ, Gallileo, Darwin. These men were reviled, persecuted, assassinated; but the mighty wave of advance swept on to the benefit of humanity. Michaelangelo, Rubens, Titian, Correggio, Shakspeare, Spencer, Beethoven, Haydn, Handel—each did his allotted task. Athens left the world richer than did Rome, or any other nation. The Church preserved through the dark ages works of infinite worth to the world, always at a sacrifice—a service that we have never fully appreciated.

We have those who are color blind, and thus denied the exquisite pleasure of enjoying the wonderful color effects of a sunset, or of the harmony of color, known only to the old masters. We have known those whose minds were not attuned to the harmonies of Beethoven's Fifth Symphony; those who regard Shakspeare's "Hamlet" as tiresome. Others who would shoot song birds, or de-

liberately murder birds for their plumage. There is something wrong with these people; they are not to blame so much, perhaps, for they may not know better; have not been properly educated or brought up. Saddest of all, however, is the knowledge that most of these persons could not have been trained to discern the harmony of color, sound, or love of other beings than selves; view unmoved an exquisite painting, or sit through an evening of music other than ragtime; look upon the works of Walter Scott or Dickens as interesting. But this is not always a matter of lack of education or opportunity. Perhaps such persons get as much pleasure in life as those endowed with a love for the beautiful, for what one has never known he does not miss. We are not to pity or condemn; for, after all, it is determined from the viewpoint of the individual. There are snobs, sycophants, followers, imitators; such are not here considered. It is only the real person that we are discussing, and of these each according to his lights.

MEDICAL WORK ON A BATTLESHIP

The medical routine and work on a first class battleship in active cruising service is described by C. M. Oman, Washington (*Journal A. M. A.*, May 16, 1914). The description, he thinks, will serve perhaps to correct some erroneous ideas. Every large cruising ship, with hundreds of men aboard living a somewhat unnatural life, under all conditions of climate, etc., has many conditions with which the surgeon has to contend. Both officers and men are engaged in somewhat hazardous work at all times; the constant noise, bugle calls, vibrations, artificial light and ventilation and irregular hours bring out all the weaknesses, the existence of which may not have been known even to the patient. The life is one of the "survival of the fittest," and the unfit are quickly weeded out. The fleet is usually accompanied by a hospital ship, to which serious cases can be transferred, but at sea this is not practicable. They can also be transferred to naval hospitals at ports where they exist. The duties, as described, are numerous and varied, and show that the naval surgeon has no special advantages, as regards leisure, over the shore physician.

A WARNING TO USERS OF TURPENTINE

As the result of an investigation by the United States Department of Agriculture, it has been found that the adulteration of turpentine with mineral oils is so widespread that druggists and manufacturers of pharmaceutical products used for medicinal and veterinary purposes should exercise special caution in purchasing turpentine. Those who use turpentine for these purposes run the risk of obtaining an adulterated article and of unnecessarily laying themselves open to prosecution under the Food and Drugs Act. It has been found, moreover, that the turpentine is often short in volume by as much as 5 or 10 per cent. The department has also found that turpentine may be adulterated in the South, where it is made, and that the further it gets from the South the more extensively and heavily it is adulterated.

SOCIAL ALTRUISM

At the request of the Mayor's Bureau of Licenses, hereafter all applicants for licenses to peddle from pushcarts in New York will be examined at the tuberculosis clinics of the Department of Health. No applicant whose sputum contains tubercle bacilli will be recommended for a license. While all applicants will be examined, irrespective of their physical condition, it is the intention to recommend for such licenses those who by reason of illness would be benefited by open air employment. Tuberculous persons in fair physical condition, and with sputum free from bacilli, and others whose physical condition requires open air employment, will therefore have preference.

CONTAGIOUSNESS OF LEPROSY

Public Health Bulletin No. 1, in an article by George W. McCoy, surgeon, and William J. Goodhue, M.D., "The Danger of Association with Lepers at the Molokai Settlement," gives the following conclusions: "Of 119 men, practically all Hawaiians or persons of mixed Hawaiian blood, living in the same house with lepers, five (4.2 per cent.), developed leprosy. Of 106 women, practically all Hawaiians or persons of mixed Hawaiian blood, living in the same house with lepers, five (4.71 per cent.), developed leprosy. Of 12 women, all Caucasians, who lived in such contact with lepers as is necessary in administering to their bodily and spiritual needs, none developed the disease. Of 23 men, all Caucasians, who lived in such contact with lepers as is necessary in administering to their bodily and spiritual needs, three (13 per cent.) developed the disease. So far as we could ascertain, the shortest period in which the disease developed after the person entered the settlement was three years (2 cases), and the longest 17 years.

THE TYPEWRITER AND LITERATURE

Of special interest to medical readers of the *March Century* is an eloquent tribute to the late Dr. S. Weir Mitchell, who contributed much of his poetry and several of his best stories to that magazine. The writer observed that Dr. Mitchell had the thin beard of the man who both thinks and does; "your thick, short bearded man does, and does not think, and your thick, long bearded man thinks, and does not do." Also, like Richard Watson Gilder, he had the respect for literature which the typewriter and cheap printing tend to destroy by making it easier to write and to publish, and harder to read and to remember.—*New York Medical Journal*, March 7, 1914.

AN INTERESTING BOOK IN PRESS

Be we financier, industrial worker, navvy, scavenger, or merely a gentleman, we all suffer to a greater or less degree from the ills which our vocations or avocations engender. Just how to prevent, ameliorate or cure these but partly understood ills, should no longer be a puzzle to the man, employer or physician, because a reliable and essentially practical book is soon to appear, under the joint editor-

ship of Dr. George M. Kober, of Washington, D. C., and Dr. Wm. C. Hanson, of Boston, Mass. Among the contributors are such authorities as Sir Thomas Oliver; Legge (London); Teleky (Vienna); Devoto (Milan); Edsall (Harvard); Alice Hamilton (Chicago); etc., etc.

P. Blakiston's Son & Co., Philadelphia, will publish the volume.

A NOVEL EDUCATIONAL EXHIBIT AT ATLANTIC CITY

At the meeting of the American Medical Association, to be held in Atlantic City, June 22d to 28th, the H. K. Mulford Company will exhibit motion pictures showing the different processes employed in the production of biological products.

Not only do the films show the laboratory methods used, but also the actual application of these preparations from the clinician's standpoint.

A short description is thrown on the screen before each process is shown, describing the pictures, so that they bear their own explanations.

Because of the fact that no suitable space could be secured in the exhibit hall, the H. K. Mulford Company have arranged to show these pictures in the Auditorium on the main floor of the Chalfonte Hotel. These films will be exhibited several times each day, and arrangements are being made so they will not conflict with the general or special sessions of the meeting.

An inspection of these films will convey a clear idea of what it means to provide adequate equipment for the production of the various biological products, particularly Diphtheria and Tetanus Antitoxin, Typho-Bacterin and preparations for the prophylaxis and treatment of infectious and contagious diseases.

LONG ISLAND COLLEGE HOSPITAL

Long Island College Hospital, Brooklyn, which is one of the oldest medical colleges in the East, has undergone complete reorganization, in order to meet the modern requirements of teaching medicine. It has instituted a five year course, to take effect in September of this year, and has arranged to add over twenty full-time members to its faculty, and every department has been increased. The junior year will be given over to dispensary work and didactic medicine and surgery, and the senior year will be devoted entirely to bedside work in the hospital owned by the college, which, with the new addition, will give the institution 560 beds, and make it one of the largest in Greater New York.

The following gentlemen will occupy the new positions on the faculty:

Dr. Archibald Murray, Professor of Pathology.

Dr. William Lintz, Professor of Bacteriology.

Dr. John C. Cardwell, Professor of Physiology and Pharmacology.

Dr. Matthew Steel, Professor of Chemistry.

Dr. William Francis Campbell, Professor of Surgery.

Dr. William B. Brinsmade, Professor of Clinical Surgery.

Dr. Joshua M. Van Cott, Professor of Clinical Medicine.

Dr. E. H. Bartley, Professor of Pediatrics.

BOOK REVIEWS

Modern Surgery: General and Operative. By J. CHALMERS DA COSTA, M.D., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, Pa. Seventh Edition, Revised, Enlarged and Reset. Octavo of 1515 pages, with 1085 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

The author suggests in his preface that a contemplation of the achievements of modern surgery must fill the surgical student with hope and confidence, must inspire him with the conviction that we are on the threshold of great events, and that the first few hesitating words of truth have as yet but scarce been lisped by the baby lips of Science. If this warning must be taken literally, when will we approach the end. In looking back to the days of him whom our author, John C. Da Costa, represents in the faculty of Jefferson Medical College, Samuel D. Gross, and comparing surgical knowledge and technic of today—as is found in the volume before us—with thirty years or more ago as given in Gross' Surgery, the most profound work on surgery of its day, and be told that we are hearing the first few hesitating words of truth by baby lips of (surgical) science, is to stagger the mind of the reviewer. He would be a bold man indeed who would state that thus far only shall you go in science, but we had prided ourselves in that we had traveled a great distance, passed so very many mile posts; that the goal could not be much farther now, only to be told that we had but just begun the race. But surgical science has advanced so rapidly—as witness the history of this remarkable work, seven editions in twenty years—that one must needs be busy to keep pace with it. We have here the whole field of modern surgery, General and Operative, under one cover; an admirable work, impossible to detail within the limits of a book review.

Under section XVII, devoted to syphilis, we find the Wassermann Test and the Noguchi Reaction fully described; while under treatment our author declares that mercury cures syphilis; that salvarsan and neosalvarsan cause the symptoms to rapidly pass away, but that if not continued at intervals, or if mercury is not given, relapse, and probably disastrous relapse, is almost certain to occur. Sections XXX, Anesthesia and Anesthetics; XXXII, Diseases and Injuries of the Thyroid Gland; and XXXVI, Plastic Surgery, are of special and timely interest. But there is no section but is up to date. So much new matter is added for this new edition that the book had to be reset from cover to cover. To keep the work within bounds, the page was made seven times longer and slightly wider, permitting the addition of 250 pages of new matter without greatly increasing the number of pages.

The work is handsomely illustrated, printed on strong, thin, opaque paper and substantially bound. We predict that this edition will prove more popular as a reference and text book than previous editions.

Clinical Hematology: An Introduction to the Clinical Study of the So-called Blood Diseases and of Allied Disorders. By GORDON R. WARD, M.D., Fellow of the Royal Society of Medicine, Medical Society of London, etc. Octavo of 394 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.50 net.

The author declares that this volume is primarily concerned with that clinical study of the so called blood diseases which has been so much overshadowed by exclusively pathological investigation. Secondly, with the classification of blood diseases, inasmuch as such a study is a necessary preliminary to any understanding of their nature. A study of the work discloses the truth of this claim, for we find the subject of Clinical Hematology complete in all of its phases from a chapter on the Blood Forming Organs, a most interesting chapter indeed, through to the Blood in Surgical Diagnosis, including Chloroma and Myeloma, Hodgkin's Disease, the several forms of Anemias, Cholemia, Cyanosis, Leucocytosis, Chlorosis, Hemophilla,

Puerpera, Leukanemia. Chapter XVI, on Leucocytosis, is very interesting and illuminating, as is that of XXIII, The Blood in Various Diseases. The illustrations are very beautiful, while the book as a whole conforms to the Saunders standard. It should be widely read.

Arteriosclerosis: A Consideration of the Prolongation of Life and Efficiency after Forty. By LOUIS FAUGERES BISHOP, A.M., M.D., Clinical Professor of Heart and Circulatory Diseases, Fordham University School of Medicine, etc., New York. Oxford University Press, American Branch, 35 West 32d Street, New York.

This is a work of some 359 pages devoted entirely to the study of arteriosclerosis. It has been carefully written and reflects the author's views. Illustrated with a number of beautiful plates and figures. Our author, Dr. Bishop, lays great stress upon toxemia—autointoxication a much abused term—as a cause for this complaint. He also declares that arteriosclerosis may exist without any evidence of calcification of the arteries; that it is a condition rather than a disease; that the key to the riddle of arteriosclerosis lies in the sensitization of individuals to particular proteins, or more specifically to split products of particular proteins. Also that it may be due to nervous influences, prolonged mental strain accompanied with high pressure and resultant damage to the heart and blood vessels. In treatment he regards diet as of the utmost importance. The author includes some sixty pages of highly interesting opinions of American physicians. The book should be widely read.

The Clinical History in Outline. By PAUL G. WOOLLEY, S.B., M.D., Professor of Pathology, College of Medicine, University of Cincinnati. Price \$1.00. St. Louis: C. V. Mosby Co., 1914.

An interesting and helpful brochure, which discusses a routine for taking clinical histories. It is interleaved with blank pages for notes, is well printed on good paper and well bound.

Transactions of the College of Physicians of Philadelphia. Third Series, Volume the Thirty fifth.

This volume contains the papers read before the College from January to December, 1913. Also a biographical list of the membership. Among the addresses is included those from G. E. de Schweinitz, David Riesman, James M. Anders, B. Alex. Randall, H. A. Hare, Robert N. Willson, E. E. Montgomery, Morris Jastrow, Jr., etc., all notable articles. Dr. S. Weir Mitchell, since deceased, contributed a short reference to the Hospitals at Gettysburg.

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ORIGINAL ARTICLES

THE USES OF PETROLEUM IN THE TREATMENT OF CONSTIPATION AND OTHER DISEASES IN INFANTS

By ERIC PRITCHARD, M.A., M.D. (OXON), M.R.C.P., etc.

Physician to the Queen's Hospital for Children. Physician to out-patients, City of London Hospital for Diseases of the Chest (Victoria Park). Hon. Physician for Infant Consultation, St. Marylebone General Dispensary, etc., etc.

London

The therapeutic uses of petroleum for internal administration are almost as old as history itself. Herodotus and Pliny both refer to it in their writings as a liquid with medicinal properties of considerable value. During the eighteenth and early nineteenth centuries, travelers in Russia, Roumania, Bavaria, South America and other countries where oil wells are situated, refer in their writings to the consumption of liquid bitumen, white naphtha, or St. Quirinus's oil, by the natives as cures for various diseases. On the other hand, since the time that paraffin was introduced into Europe for lighting purposes medical literature has abounded in references to cases of accidental poisoning and attempted suicide by the swallowing of the crude oil. This fact explains the very natural prejudice many people at first evinced at taking the purified form of paraffin by the mouth for medicinal purposes.

My first acquaintance with the uses of the more refined and non-toxic varieties of paraffin dates from the year 1893, when petroleum in the form of an emulsion was brought to my notice as a substitute for codliver oil in the treatment of consumption and wasting diseases. Under the late Dr. W. B. Cheadle's directions I gave this new emulsion a prolonged and careful trial in several cases of tuberculous disease in children who were warded in St. Mary's Hospital, but with such disappointing results that we soon abandoned

its use in favor of our old friends codliver oil, maltine and steel wine.

If, at that time, I had known what I learned a few years later, namely that Dr. N. A. Randolph,* of Philadelphia, had conclusively proved in the year 1884 that all paraffin when swallowed by the mouth passed through the alimentary tract in an unabsorbed and unchanged condition, I should probably have spared myself the trouble of making clinical experiments to prove its virtues as a food. When I entered into private practice a few years later I was surprised to observe that the psychological influence of persistent advertisement had already won for this petroleum emulsion a strong position in the affection of the medical profession as well as of the lay public as a cure for bronchitis and other pulmonary complaints. Knowing then that petroleum acted merely as an inert substance in the alimentary tract and that none of it was absorbed into the system, I came to the conclusion that its reputation depended either on the same properties as those which belong to bread pills, or on the considerable doses of hypophosphites which were added, very wisely, on the principle that if the petroleum failed the added drugs might succeed.

In the year 1906 I began to alter my views with respect to the value of petroleum, for I came to the conclusion that it must possess therapeutic properties of a very rational character in the treatment of constipation, and that as a remedial agent in this condition it must be indirectly valuable in many other morbid conditions.

My enlightenment came in this way. I was at the time in great difficulties in respect to the treatment of constipation in infants, for I found that if the rational treatment of this condition by olive oil, a line of treatment which I greatly preferred to the irrational use of drugs, enemas, or glycerine suppositories—was pursued to its logical conclusion it led one to a most unfortunate *impassé*. An occasional teaspoonful of olive oil is an excellent corrective to constipation in infants when this condition is due to a deficiency of fat, but in those cases in which constipation supervenes in spite of the fact that fat is already supplied in adequate amount, the additional administration of olive oil only aggravates the symptom. In trying to discover some lubricant which could effect the required object without causing so called "fat injuries," I called to mind certain observations which had been made some years previously by Dr. Robert Hutchinson† in which he pointed out that, although the claims

*Proceedings, Academy of Natural Sciences, Philadelphia, 1884.

†British Medical Journal, March 24, 1909.

of the manufacturers that petroleum emulsion could serve as a substitute for codliver oil could not be substantiated, it was possible that petroleum itself could act as an artificial substitute for mucus, and thus be of value in other directions. This idea of employing petroleum as an artificial substitute for mucus in cases of constipation appealed strongly to my imagination. I therefore decided to give it an immediate trial and made my first experiments on a number of infants who were attending at my Infant Consultations in Marylebone and were suffering from constipation.

The success which attended my early experiences with petroleum as an intestinal lubricant for infants was so encouraging, that in a very short time I practically abandoned all other forms of aperient medicine, and it is most gratifying to me at the present time to realize how widely this idea has been taken up in the treatment of constipation in older subjects. While giving Dr. Hutchison full credit for his suggestion that petroleum might play the part of an artificial mucus, I must claim some credit for having proved the practicability of the idea. I make this claim because I now hear it said that there is nothing new in this idea and that petroleum had always been used for this purpose. If this is so I cannot understand why in medical text books and in special works on constipation heretofore published and in the Special Number of *THE PRACTITIONER*, published in May, 1910, which was devoted to the subject of constipation, there are no references to the use of petroleum in this connection. I have very carefully examined all the literature of the subject and before 1906, when I first began to use petroleum in cases of constipation, I can find no reference to its use in such a connection—it was, however, largely used empirically in pulmonary affections and as a substitute for codliver oil, under the mistaken belief that it could be absorbed from the alimentary tract, but it was for the very reason that it could not be absorbed and subserve these reputed objects that induced me to try it as an expedient in constipation. [Although I had repeatedly pointed out, both in public and in private, the merits of petroleum in cases of intestinal stasis and constipation, it was not until I published a full account of its influence in such conditions in my book on the *Physiological Feeding of Infants*, published July, 1909, and again in an article in the special Constipation Number of *THE PRACTITIONER*, May, 1910, that the petroleum method was given a trial by others. Now that the method has justified the claims I made for it I am told that there is nothing new about it and that it has been always used. Until, however, I am shown some reliable evidence that petroleum was deliberately and rationally prescribed as a cure for constipation prior to 1906,

I shall continue to persist in my claim that I was the first to use it for this purpose.

Most of the paraffin which is now used for internal administration is of the liquid variety—"Petroleum liquidum purum;" it is, however, a body of very indefinite composition. The official standards, while authorizing certain limits as to the volatility and specific gravity do not fix definitely the chemical composition of the oil.

It thus comes about that no two samples are exactly alike either as regards taste or composition, and manufacturers have taken advantage of these inconsistencies to sell special brands under registered names at fancy prices. As long, however, as a liquid petroleum is tasteless and free from toxic compositions, one kind is as good as another and it certainly is unwise to pay a fancy price for a fancy name.

When the idea first occurred to me in 1906 to treat the constipation of infants by petroleum I thought I would try my old friend the original petroleum emulsion which had been so largely advertised as a substitute for codliver oil, but then I remembered that it was fortified with considerable quantities of mixed hypophosphites, which might introduce fresh and undesirable complications. I therefore took counsel with the dispenser at the St. Marylebone General Dispensary, and between us we devised the formulary of an emulsion which under the name of "Marylebone Petroleum Emulsion" has acquired quite a local reputation. The emulsifying agent in this preparation is a decoction of Irish Moss, a very much better medium than gum acacia or tragacanth which is usually employed. It is much cheaper, and it contains a small quantity of iodine, which I believe has a really beneficial influence on most of the conditions for which the emulsion is usually given. The flavoring is quite pleasant, and the small addition of benzoic acid preserves the decoction of Irish Moss from fermentative changes. The following is the formula of the Marylebone Emulsion:

Paraffini liquidi B. P.		33.0
Acidi Benzoici		
Glusidi	a a	0.05
Olei Cinnamomi		0.10
Decoctum Chondri Crispi	ad	100.00

The chief trouble in prescribing this emulsion is that it is practically impossible to make it in small quantities; it must be made in bulk if it is to be of good quality. Another objection to the use of an emulsion of petroleum instead of the plain oil is that larger

quantities of the emulsion must be taken than of the oil itself; in fact three times as much. And further, it is more expensive. These disadvantages, however, are compensated for by the more efficient action of the emulsion. Emulsions of petroleum are now made on an improved principle, which allows them to contain so high a percentage of petroleum as 60. And in these the emulsification is so fine that it is claimed that the petroleum is actually absorbed into the system and excreted in the urine: even if these claims are true, I cannot see that the absorption of a mineral oil is of advantage to the system; indeed, I can quite conceive that it might be very much the reverse.

The liquid paraffins which are now used in such large quantities are very much purer oils than those originally obtainable; a few of them are colored and flavored, and sold under fancy names as proprietary articles. We experimented at the St. Marylebone General Dispensary for a long time in an endeavor to flavor liquid paraffin in such a manner as to make it really agreeable to take. The best, however, that we succeeded in making was colored with chlorophyl and flavored with menthol. We called this Marylebone Crème de Menthe, and it has been very well received by those patients for whom it has been prescribed; and it certainly has more than a colorable resemblance to the liqueur. The great difficulty in making liquid paraffin really palatable is that comparatively few flavoring substances are soluble in it, difficulties which do not arise in the case of the emulsion.

During the last two years the use of liquid paraffins has been largely replaced by the introduction of solid forms which can be flavored and colored in any required manner; these are eaten out of a spoon like a confection or preserve, and answer all the purposes of the ordinary liquid oil.

Although in their natural state these solid paraffins look exactly like vaseline, they are, as a matter of fact, very special kinds of emulsion, and as such can take up coloring and flavoring matters to the point of saturation of the emulsifying agent.

The whole history of the discovery of these solid or emulsified paraffins is extremely interesting, but into this matter I cannot here enter. I can only refer those of my readers who are interested in the question to a paper of Mr. S. U. Pickering,* which contains a full account of the whole matter. In a private letter to me, Mr. Pickering very kindly explains how it is that an emulsion of paraffin can be made so as to appear quite transparent, and at the same time

*Emulsions, by Spencer Umfreville Pickering, M.A., F.R.S. Transactions of the Chemical Society, 1907, Vol. 91.

consist almost entirely of paraffin, with the merest trace of adventitious emulsifying agents. He says: "The explanation of the semi-solid or jelly emulsions is clearer to me now than it was then (i.e., in 1907, at the time he wrote the paper referred to above. E. P.). Globules of uniform size in a liquid medium, require that medium to amount to about 25 per cent. of the volume of the whole mixture, for filling up the interspaces; if the globules are not uniform, the volume of liquid will be somewhat less: but a very large reduction in it involves the globules becoming distorted so as to fit closer, and ultimately they must assume such a form as a dodecahedron, being tightly packed, like bricks, together, with only a film of liquid of molecular thickness separating them. This accounts for the rigidity of the mass, its transparency, and its showing no visible structure under the microscope. Dry air causes it to demulsify by drying up the separating film, and when wetted it becomes opaque, as the films increase in thickness and the oil particles assume a globular form."

These solid paraffins are an immense improvement on the old vaselines which, until 2 years ago, were practically the only solid form in which petroleum could be administered by way of the mouth. It is difficult to imagine anything more nauseating than vaseline naked and undisguised as a medicament for oral administration. And yet, to my knowledge, it was largely prescribed in this form, at least at one hospital in London, and given to the patients in wooden pill boxes, with directions to be eaten with a spoon.

This inartistic method of dispensing solid paraffin has now been superseded by these solid emulsions, which can be colored and flavored in a great variety of ways. Many people much prefer these solid preparations to the liquid forms, or even to the simple emulsions such as I have described, but for infants there can be no doubt that the liquid emulsions are more appropriate.

The general claims of paraffin as an intestinal lubricant require no corroboration on my part, but in its special application in the treatment of those heterogeneous disorders of infancy which are often classified as indigestion its great value is not yet fully appreciated by the medical profession. As I have elsewhere pointed out, most of the so called troubles of indigestion in infancy are associated with disturbances of the motor functions, such as spasms of sphincters, enterospasms or dysperistalses of one kind or another. In these conditions it is obviously extremely useful to know of an efficient lubricant, such as petroleum, which can penetrate to the lower reaches of the bowels without absorption, and without chemical change. In severe cases of so called colic, or windy spasm in

infants, I sometimes almost fill the intestines with petroleum emulsion; either alone or in combination with carbonate of bismuth. I learned the value of large doses of bismuth in such cases when I was investigating the causes of motor disturbances in infants, by means of the bismuth food and the X-rays. In many of these cases I noticed that the crying and pain subsided immediately after the administration of the bismuth: Since then, I have given very large doses of this drug in combination with petroleum emulsion with the greatest confidence, and generally with the most gratifying results. The chief objection to the administration of bismuth in large doses is that its gritty properties make it distasteful to infants; this disadvantage is overcome by using the preparation known as "Glycerinum Bismuthi carbonatis," a most elegant preparation of milky softness, details for the making of which are given in *The Codex*. One drachm or even two drachms of this combined with an equal quantity of petroleum emulsion serves as a most efficient carminative for infants troubled with wind or colic. It may be given independently or combined with the contents of the infant's bottle. A mixture of this kind is a most efficient substitute for meconium to the important physiological functions of which I have repeatedly drawn attention. When this natural intestinal lubricant and antiseptic is by design or accident discharged from the bowel of the new born infant, disturbances of motor functions and enterospasms are very liable to supervene. In such cases the free exhibition of this artificial meconium has the most excellent effect in restoring comfort.

I am not prepared to support the statement that petroleum is a powerful antiseptic agent. Our experiences in attempting to discover an efficient preservative for our emulsions gave the lie to this belief, but all the same there can be no doubt that it does in some degree limit and retard the decomposition of those nutrient media in which it is combined in large proportion. It does so, I feel convinced, by coating either the bacteria, or the nutriment on which they thrive, with an impenetrable film of a substance which cannot mix with, or become incorporated, in the protoplasmic contents of the living cell. We know from experience that the stools of persons who regularly take paraffin are, if not exactly odorless, at any rate far less offensive than when the oil is not taken. This is, however, open to the interpretation that it is quite as much due to the rapidity of transit of food through the intestinal tract, as to the inhibitory influence of the petroleum on the growth of the bacteria themselves.

One of the most valuable uses of petroleum is in the treatment of

thread worms in children. This subject, however, hardly comes within the compass of this paper, but I refer to it here because I believe that its almost specific action as a vermifuge in such cases, is dependent not so much on its lethal influence on the parasites or their eggs as upon its direct influence on the mucous membrane. Paraffin in its crude form has long enjoyed a high reputation as a local application in cases of catarrhal or diphtheritic inflammation of mucous membranes. It has been claimed* that pieces of diphtheritic membrane when immersed in crude paraffin soon become soft and disintegrated. On similar grounds it might be supposed that paraffin when applied to unhealthy mucous membranes has a health giving and cleaning up influence. In the treatment of chronic catarrhs of the nose and pharynx, the purer forms of petroleum in combination with menthol obtained a very considerable vogue a few years ago, and when applied to the affected mucous membranes in the form of a fine spray by means of B. and W.'s useful little paroline nasopharyngeal atomizer, it affords results which in my opinion are not surpassed by any of the more recent methods.

Whether, however, petroleum owes its undoubted efficacy in cases of intestinal disorder to its therapeutic effect on the mucous membrane, or to its undoubted influence on the motor functions of the bowel, there can be no question that in cases of thread worm infection it acts by ironing out, and cleaning up the crypts or other lurking places of an unhealthy mucous membrane in which the eggs have an opportunity to incubate undisturbed.

Although petroleum is, in the great majority of cases, a most efficient lubricant and aperient, nevertheless in certain exceptional instances it undoubtedly predisposes to constipation. This paradoxical effect which must be familiar to all those who have had much experience with the drug, is, I believe, to be explained on the following grounds. In some individuals a regular action of the bowels can only be maintained by the stimulating and prevocative action of irritating particles such as the seeds or husks of fruits or vegetables. In such cases petroleum may predispose to constipation by its emollient influence on the mucous membrane, thus depriving the rectum or its neuromuscular mechanisms of the required stimulation. Such constipation is, however, quite compatible with relief of intestinal stasis in the higher portions of the bowel.

In considering the alternative hypotheses on which the undoubted efficacy of petroleum in cases of intestinal disorders may be explained, it may not be altogether irrelevant to remember that paraffin may have the same influence in inhibiting absorption of food, as

*Yearbook of Treatment, 1895, page 1678.

I have suggested it may have in the case of bacteria; that is to say, it may coat either the food or the mucous membrane with an impenetrable film of oil in such a way as to interfere with the absorption of the products of digestion. In my experience hypernutrition or the absorption of an excess of food, far more frequently interferes with sound nutrition than does starvation, and especially is this true of infants and young children of the upper and middle classes.

If this belief is well founded, it may be that the reason why petroleum proves so beneficial in many cases is because it retards rather than promotes the absorption of nutritive material.

As far as the treatment of infants is concerned, I have been quite consistent in my adherence to the emulsion in preference to any of the other forms in which it may be administered, and this is chiefly for the reason that the emulsions mix more intimately with the ingested food than is possible with the pure oil. I think that the softening effects of paraffin on the contents of the descending colon and rectum must be more pronounced when the oil is evenly distributed with the food than when it is confined to special portions, and for this reason I think it far better to give a dose of the emulsion with every feeding than to give only one dose of the undiluted oil during the 24 hours. I admit, however, that in certain obstinate cases the mass effect of a large dose of the oil given once a day reinforces the milder but more sustained influence of repeated doses of the emulsion.

I find petroleum emulsion such a universally useful preparation in the treatment of infantile disorders that now I almost invariably use it as the vehicle in which to prescribe any particular drug I wish to administer. It is quite immaterial whether the drug be soluble, insoluble, acid, neutral, or alkaline; they all combine well with it, and their taste is effectually disguised. In the case of insoluble drugs, such as sulphur or bismuth, it is important to see that the bottle is well shaken before pouring out a dose.

Before I conclude, one word as to dosage. As a rule I give infants one teaspoonful of the emulsion after or with each feeding, but I do not hesitate to give even as much as half an ounce 6 or 8 times a day. I have never noticed any untoward results of the pure oil, and generally prescribe doses of half to three drachms once a day.

SUMMARY

1. The internal administration of crude petroleum for medicinal purposes dates from very early days, but the use of the more re-

finer oils is of recent origin. Toward the end of the last century, it was largely administered in the form of an emulsion combined with hypophosphites under the mistaken belief that it possessed nutritive properties and could serve as a substitute for codliver oil.

2. In 1899 Dr. Robert Hutchison repeated the almost forgotten experiments of Dr. Randolph (1884) and proved that petroleum was not absorbed from the bowel, that it had no nutritive properties, and that the only imaginable therapeutic purpose it could serve was as a substitute for mucus.

3. Acting on this suggestion in 1906 I began to use paraffin as a rational specific in the treatment of constipation in infants.

4. I found petroleum emulsion extremely useful in the treatment of all forms of indigestion in infants.

5. Its efficacy in these conditions may depend on:

(a) its lubricating properties.

(b) its antiseptic properties.

(c) its cleaning up effect on the mucous membrane.

6. Petroleum emulsion is a most useful vehicle for all sorts of drugs, soluble as well as insoluble, which are prescribed for infants. It may be given with perfect safety in very large doses.

MAMMARY TUMORS WITH METASTASES*

BY J. BION BOGART, M.D., F.A.C.S.

*Attending Surgeon, Kings County, Methodist Episcopal
and Jewish Hospitals*

Brooklyn

History: M. C., housewife, born in Ireland, age seventy, was admitted on September 2, 1913.

Chief complaints: Tumor of the right breast and "rheumatism" in the left shoulder and legs.

Present history: Twelve years ago the patient noticed a small lump the size of a pea in the right breast to the left of the nipple. This gradually grew larger, until it has reached its present proportions. At times there has been a dull, aching pain in the tumor. The patient has lost fifty pounds in weight during the past two years. She is now unable to work because of weakness. There is no history of trauma. There is pain in the muscles of both legs and inability to use the left arm because of weakness; stiffness and swelling of the left shoulder. The patient says she had "rheumatism" last winter, and since then the shoulder has been sore and stiff. Appetite fair; bowels regular; arises two or three times at night to urinate; no dysuria. No swelling in the feet; no dyspnea; occasional cough. No bloody expectoration.

*Surgical clinic held at the Kings County Hospital, October 2, 1913.

Past history: No infections, except pneumonia four years ago.

Family history: Husband died of tuberculosis.

Social history: Cook; indulges moderately in alcohol.

Physical examination: Fairly well developed woman, who has lost considerable weight; appears anemic; tongue clean; teeth poor; pupils equal, react promptly.

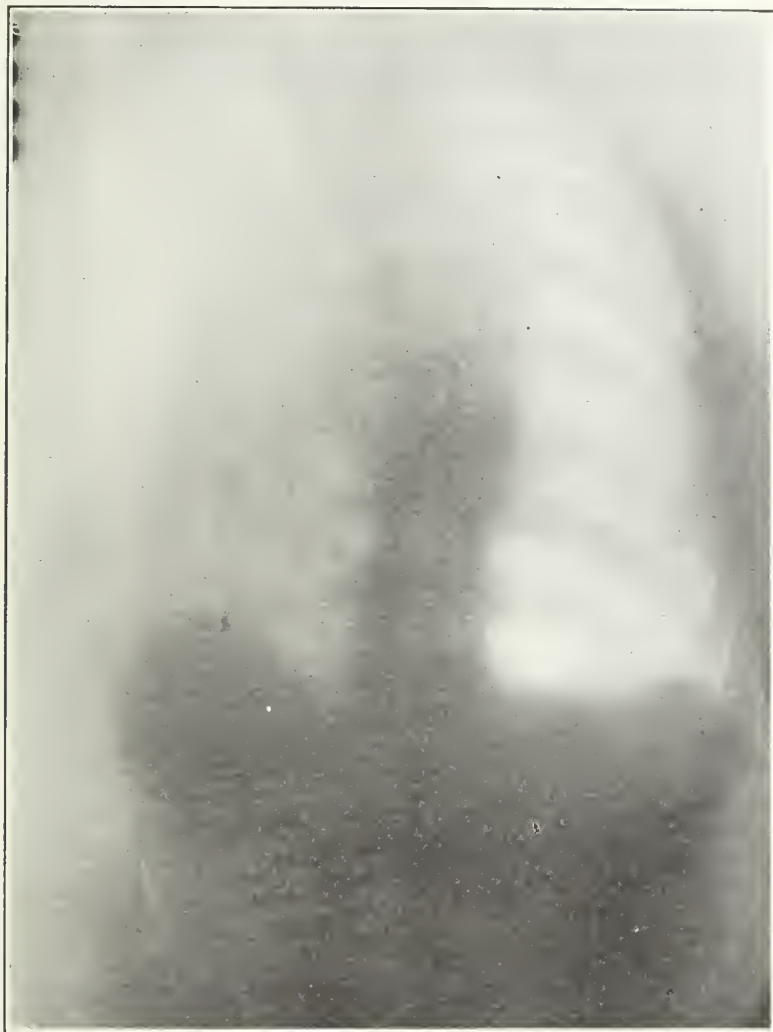


FIG. 1

Chest (see Fig. 1): The right posterior chest is flattened. Thoracic and lumbar vertebrae show slight kyphosis and scoliosis; resonance is good anteriorly and on both sides, but impaired posteriorly on the right side. Expansion fair, rales over both sides.

Breast (see Fig. 2): Large lump, movable vertically as well as laterally, present in the right breast. It includes the nipple. It is firmly fixed to the skin and pectoral muscles; skin bluish and discolored. Mass, softened, lobulated and larger than a fist. The supraclavicular and axillary glands are not palpable. The glandular system elsewhere is negative.



FIG. 2

Heart: Apex beat in the fifth interspace in mid clavicular line. Sounds of fair quality; systolic murmur at apex conducted to the axilla.

Abdomen: Adipose; no ascites; liver not palpable; the lower border corresponds to the costal arch. The spleen is not palpable. There are no masses felt.

Extremities: Arms and legs show more emaciation than other regions.

The left shoulder is thickened and indurated, bluish in color; over the spine of the scapula the superficial veins are prominent; there is marked tenderness, on pressure, and the patient is unable to lift the arm higher than the horizontal position; patellar reflexes absent; there is moderate tenderness over the calves of the legs and fleshy parts of the arms.

COMMENTS BY DR. BOGART

This case is of interest (1) from a diagnostic standpoint, (2) because of its long duration—12 years, (3) because of the metastasis to the scapula, (5) as regards prognosis, and (4) in regard to the treatment.

It was brought to my attention as probably a sarcoma of the breast, chiefly, I believe, because of the absence of palpable involvement of axillary glands in so advanced a stage of the disease. Carcinoma, as is well known, disseminates itself through the lymphatic system and sarcoma by way of the blood stream.

I did not accept this diagnosis, first because of the comparative rarity of sarcoma as compared with carcinoma of the breast, secondly because when the latter does occur in the breast it is usually in young persons, and thirdly because the skiagraph of the metastasis in the scapula is neither characteristic of a central nor a periosteal sarcoma (see Fig. 3). In a less advanced stage of the disease we might have been guided to a considerable extent by the fact that sarcoma of the breast is an encapsulated tumor, the nipple being elevated by the growth while in the case of carcinoma, the nipple is often retracted or, as Halstead has pointed out, if the carcinoma is small and does not lie in the vicinity of the nipple, even in the earliest stages, there will generally be some pitting or drawing in of the skin over the tumor.

In passing I might remark that whether the growth be carcinoma or sarcoma, at such an advanced stage we might reasonably expect to find extensive glandular involvement. Why, then, was it apparently absent in this case? Before proceeding to answer this question it would perhaps be well for us to remember that in very obese subjects such as this one it is not always possible to determine beforehand whether the axillary glands are enlarged or not. After the removal of the breast I shall ask my brother, Dr. A. H. Bogart, who will do the operation, to incise the axilla for the purpose of determining this point.

The average type of carcinoma of the breast usually runs its course in from three to five years, but instances are not uncommon in which, especially in the aged, the disease pursues a much more chronic course.

It is, however, unusual to find, as in this case, that the tumor has existed for twelve years.

Metastases are not uncommon in advanced stages of the disease, the liver being credited with the largest number followed by the lungs and bones. My own experience in breast cancer would lead me to believe that lung metastasis is more common than liver. I have seen a number of cases of bone metastases. These are most common in the femur, humerus, and spine. In the long bones their presence is often first denoted by pathological fracture. This case is the first in which I have noted a metastasis in the scapula. In



FIG. 3

a case of pathological fracture of the left femur, seen during the last summer in consultation with Dr. Wadsworth, the breast cancer, which had been removed four years before, was on the right side.

It was at first thought that the physical signs denoted a possible metastasis to the lung underlying the affected breast, but X ray examination does not confirm this.

Why, it may be asked, are we operating on such an advanced case in which there is no hope of a permanent cure?

The entire breast is the seat of a now rapidly growing nodular,

purple tumor, which is on the point of breaking through the skin and becoming an ulcerated mass. The object of operation is to prevent this and to remove from the sight of the patient the evidence of her hopeless condition. We are operating at her request and without promise of ultimate cure. We shall not attempt a radical operation because of the metastasis, though, in the absence of this, the extensive skin involvement practically contraindicates it. Although we shall probably have a local recurrence, it is more than likely that the patient will succumb to general carcinosis before it becomes as threatening as the growth you now see. In spite of the advanced condition of the local disease and the metastasis, this patient shows at present no cachexia. She is not anemic, as shown by the blood picture. These changes cannot, however, be long delayed, now that the tumor, after remaining so long quiescent, has taken on such rapid growth.

The general indication for the treatment of carcinoma of the breast is now so well understood that it is scarcely necessary for me to say that up to the present time radical excision offers the only hope of cure, the probability of which depends both upon the stage at which operation is undertaken and the thoroughness of the operation.

In all cases of breast cancer it is absolutely necessary to remove not only the entire gland, but all the overlying skin and the entire contents of the axilla. To do less is not only to abandon hope, but, in all probability, to hasten the fatal issue through dissemination. I see no reason why, in a case that is not too far advanced, in which the disease is clearly still confined to the breast and has not approached the under surface, it is not proper to divide the muscles, clear out the axilla and then to suture them. This, in general, means the sacrifice of all the pectoralis minor and the external portion of the major as well, not because we fear extension of the growth to these muscles, but rather to facilitate complete dissection. Whether we should include in our operation the supraclavicular glands, and the fascia covering the sheaths of the Rectus Abdominis muscles depends somewhat upon the conviction of the operator. While the earlier radical operations embraced attack upon the supraclavicular spaces if the glands in this region could be palpated or were suspected of being involved by the extent of axillary advance, this course is not now so regularly followed because it is believed by many that in the presence of demonstrable cervical extension the disease has progressed too far to make the ultimate hope of cure sufficient to justify this prolongation of the operation. Our own Dr. Pilcher (L.S.) has called attention to the fact that

oftentimes, when the glands above the clavicle cannot be palpated, if an incision is made through the fascia they will be found enlarged. That is a very good thing to remember. If there is extensive axillary involvement, it is fair to assume that there is also supraclavicular involvement. Halsted reports 7 per cent. of cures of cases in which the supraclavicular glands were enlarged, and as the percentage of cures in all cases of carcinoma of the breast in the best clinics averages about twenty five per cent., if one can obtain 7 per cent. of cures by going above the clavicle, other things being equal, and the patient's condition justifies the prolongation of the operation, it seems fair that we should do that.

The researches of Handley show not only the importance of wide removal of the skin overlying the breast, but also indicate the removal of the fascia overlying the Recti if we hope to prevent local recurrence and to avoid liver metastasis because of the intimate relationship between the lymphatics of the breast and these tissues. It is well to remember that over fifty per cent. of recurrences are in the skin.

The prognosis, after cancer of the breast operations, depends, as has already been said, upon the stage of the disease and the completeness of the operation. To this must be added the type of cancer with which we are dealing.

The adenocarcinomas gives the best results (50 to 75 per cent. of five year cures), the scirrhus next (approximately 25 per cent.), and the medullary last (about 13 per cent.). The total average of five year cures in the best clinics is about 25 per cent.

My brother, having removed the entire breast, hands it to Dr. Terry, Chief of our Pathological laboratory, who will as soon as convenient give us a report from a frozen section. In the meantime, Dr. A. H. will explore the axilla to determine positively the question of axillary involvement. He tells us that the glands are extensively diseased and that, having gone so far, as it will not add much to the hazard of the operation, he will remove the pectoral muscles and clear out the axilla.

This has been done and the wound closed without drainage. In dressing the wound particular attention is called to the pressing upward of the axillary fold, with compresses of gauze, so as to completely obliterate the dead space and favor free motion of the arm after the wound has healed. In our experience it is better to avoid primary drainage in these cases because, although frequently, in spite of the firm pressure of the dressings, held in place with broad straps of adhesive plaster, there is some accumulation of lymph. Infection is much less likely to occur if this is evacuated

and a tube introduced at a subsequent dressing. The arm is not included in the dressing, but the forearm is supported with a sling.

Dr. Terry reports that the tumor appears to be carcinoma, but that he prefers to postpone a more positive opinion until some of the tissue has been stained and mounted in the usual manner.

The most common benign breast tumor which requires conservative treatment is fibroadenoma. These growths are quite common and usually occur in young women. One of the diagnostic points about them is that they may involve both breasts. They may be diagnosed from mastitis by simply laying the hand on the breast and pressing it against the chest. They are so hard that they appear like marbles under the hand. If the breast is palpated these tumors can be picked up and are found to be encapsulated, whereas in carcinoma there is a diffuse growth. It is pretty easy to decide when an adenofibroma is present. These growths have not a very great tendency to become malignant, but it is wise to remove them because it is best to get rid of any growth in the breast.

An incision radiating from the nipple will dispose of an encapsulated tumor. It may be shelled out, and if you open the capsule you will find the adhesions are very slight and the wound can be closed without drainage if care is taken to control hemorrhage. It is necessary to be very careful about asepsis. The breast is so rich in fatty tissue that it is inclined to suppurate.

Another method is to make an incision between the breast and the chest wall, lifting the breast up and removing the growths from underneath.

The next most important type, which is not malignant and which deserves conservative treatment, is a form of mastitis which often occurs in young women. It will be usually found that this tumor increases during menstruation, or just before it, subsides thereafter, and is more painful at that time.

A second type of mastitis, occurring as a chronic breast inflammation in older subjects, is one of the most frequent conditions we have to deal with in the breast.

The senile form in which we have considerable infiltration of the breasts, is painful and tender to pressure. Some of the senile forms become malignant, probably sufficient of them to make it proper in women at the menopause to remove the breast, but we are not justified in removing the muscles or the axillary contents until after the breasts have been removed and we have microscopic indications that we are dealing with a degenerative mastitis. It is in just such cases as these that it is of great importance to recognize the fact that in any carcinomatous growth, there will always be some

drawing in of the skin, even if there is not a regular dimple. If the nipple is not retracted it will stay behind when the breast is raised from the chest. I am frank to say that I have not studied this sufficiently in the small borderline growths, but I am willing to believe that it must be a sign of very great diagnostic importance.

Note: This patient left the operating room in good condition, the entire operative procedure having occupied but thirty five minutes. A subsequent report from the ward suggested a hypodermoclysis. This was given, with excellent result. The pathologist reported the case as one of alveolar carcinoma and stated that the lymph glands show invasion (see report).

Notes of October 9: This case was again presented at the clinic the week following, to show the result of operation and also in connection with one that follows. The dressing was removed, and at the point of greatest tension in the suture line, where a rubber tube bolster had been used, a small area of necrosis was observed. Otherwise the wound appeared to be healing satisfactorily.

A case of recurrent, inoperable carcinoma of the breast was presented with the preceding, October 9.

History: A. S., age fifty three, occupation cook, born in Finland.

Chief complaint: Pain in the right chest, dyspnea and weakness.

Present history: In April, 1913, the patient was operated upon in the Presbyterian Hospital and a tumor of the right breast removed. It was first observed in January, 1913. After she left the hospital she went to work as a cook and discharged her duties capably until September, when a small lump appeared at the site of the operation. She went back to the Presbyterian Hospital, where she stayed three days and was told that no operation would be performed. Toward the last of September she became dyspneic upon the slightest exertion, and experienced a sticking pain in the right chest upon breathing. For the past two weeks she has had no appetite. She has lost considerable in weight and feels weak, so that she has been compelled to stay in bed for the past week. Bowels regular; no swelling of the feet; a little cough at times; about a week ago expectorated a little blood; no night sweats. For the past two weeks she has had difficulty in adjusting her skirts, because of swelling of the abdomen; right arm has been swollen since the operation; arises once or twice at night to urinate, act not painful.

Past history: Denies acute infectious diseases; frequent attacks of bronchitis; malaria forty years ago.

Social history: Unmarried; cook by occupation.

Physical examination: Fairly well developed woman, has lost considerable weight; glandular system negative; pupils equal and react to light; teeth fair.

Chest: Scar of previous breast amputation evident, small, discolored, fairly fixed, softened mass, not tender, present at the site of operation. The right side of the chest is more prominent than the left and expands poorly. The left side expands well. The right chest is dull from the apex of lung to base. Left lung resonant, breathing vesicular, tactile fremitus and vocal resonance normal; breathing over the right lung diminished, in places almost absent, distantly bronchial toward the apex posteriorly; tactile fremitus and vocal resonance absent over the right side; Crocco's sign present at the base of the left chest.

Heart: Sounds rapid; no murmur; apex beat in the sixth interspace anterior axillary line three inches below the nipple and three and a quarter inches to the left with the patient on the right side.



FIG. 4

Abdomen: Moderately distended; little, if any, fluid present; liver, lower border, by percussion, almost a hand's breadth below the costal arch. Spleen not palpable. Liver palpable almost down to the umbilicus.

Extremities: No tenderness over bones or joints. Right arm swollen from shoulder down. Limited motion. The extremities show considerable emaciation.

REMARKS BY DR. BOGART

The right side of the chest from which the tumor was removed bulges in comparison with the left side. You do not have to put your hand on it, for you can see that something is wrong with the right side. The cardiac apex, when we examined her the other day, was about three inches to the left of the nipple. It is not so far over now. The respiratory sounds are now distinct; something has occurred since then. There is also resonance now. I asked the house surgeon to aspirate the chest. He has removed about 130 ounces. After the fluid was removed an X ray picture was taken (see Fig. 4). I am sorry that a picture was not taken before the fluid was removed, because we would then have seen the shape of the heart and its displacement better than we do now. The mass is firmly adherent to the chest wall. There are also small nodules in the skin. We have unquestionably metastasis in the lung. What color was the fluid? (Answer by house surgeon.) The fluid was straw color and apparently contained no blood.

Report: Chest fluid removed from A. S. shows it to be sterile. No signet ring cells found.

We also have an enlarged liver. When the fluid was present it was easy to palpate the liver.

The liver was not nodular: As I put my hand on the abdomen I do not feel it now where I did the other day. The removal of the large amount of fluid has allowed it to slip back.

Dr. Chas. Eastmond, who interpreted the X ray plate of the thorax, reports as follows: The right lung is studded with small areas of consolidation. These areas are irregular in form with hazy edges. In the lower part of the right lung there is a large irregular patch. These areas of consolidation may be due to an acute infection, but with the history of carcinoma the probability is that they are secondary carcinomatous deposits.

RHEUMATISM

By R. HAYES DAVIS, M.D.

Louisville, Kentucky

The term rheumatism as at present utilized is confusing, owing to the tendency of the medical profession, and especially of the laity, to speak of all joint and muscular affections as rheumatism. There is but one disease which should properly be denominated rheumatism, and all other forms of arthritis should be described by other and more appropriate designations.

Acute rheumatism should not be regarded as a local joint lesion, but a general disease with varied manifestations. While in the past there have been advanced numerous theories to explain the etiology, more recently its similarity to other infectious disorders has induced most authorities to regard any cause, other than infection, to be improbable; and, while there is still a difference of opinion as to the specific causative organism, there appears little doubt that the so-called *diplococcus rheumaticus* is the primary etiological factor. This organism has been isolated from rheumatic lesions, and has produced arthritis and endocarditis in animals. It can be readily grown on artificial culture media, but time will not permit a detailed description of its characteristics.

There are certain predisposing causes to rheumatism which are important; and heredity certainly plays a prominent rôle. There is a distinct family history of rheumatism in a large proportion of cases, and its presence in both parents makes the tendency much greater than if only one parent were so affected. Acute rheumatism is rare under five years of age, but between five and fifteen its frequency greatly increases. It is more frequent in children, and becomes less so as age advances. There is little difference in its presence between the sexes, but climate, season and locality are predisposing factors. It is more common in cold, damp climates, and in the spring and autumn; and many patients give the history of chilling or exposure to dampness, this being especially important if the body and mind are fatigued. There is abundant evidence to show that rheumatism at times exhibits a tendency to an epidemic nature, i.e., that there are waves of the disease, and that its character varies in different outbreaks. Diet does not appear to have any influence upon the tendency to development of the disease.

I shall not attempt to describe the pathology of the various rheumatic affections, as it would consume too much space; but I will mention some of the morbid changes in discussion of the symptomatology.

The onset of rheumatism varies greatly in different cases. It may be preceded by a long interval of gradually failing health, with anemia, nervousness, headache, sore throat, indefinite joint pains, general weakness, etc. When there is a history of rheumatism in the family, a child presenting such symptoms will in all probability sooner or later develop other and more serious lesions. Chorea is a manifestation which frequently develops in this insidious manner. In other instances there may be a history of exposure to cold or dampness, and within a few days there will be noted sore

throat, fever, malaise, pain in the limbs, and prostration. After the disease becomes fully developed, the symptoms depend upon the parts most severely affected. There may be chorea, precordial pain and dyspnea, or multiple arthritis, the latter being most frequently prominent in adults. In rare cases rheumatic nodules or a cutaneous eruption constitutes the first manifestation.

The foregoing description more frequently applies to the child, but the disease in adults sometimes develops in a similar insidious manner. However, in most older patients the characteristic joint changes will be noted. There may be sore throat, chilliness, or even a rigor, with general muscular pains and weakness. These symptoms are soon followed by painful joints. The patient lies in bed in a helpless condition, and the slightest movement of the affected parts causes excruciating pain. The joints become involved, one after another, oftentimes with great rapidity, improving in one and increasing in others. The larger joints and tendons are more frequently involved, but the smaller ones do not always escape. There is usually profuse perspiration which has a sour odor. There is no characteristic fever, but the temperature is moderately elevated. The pulse is more rapid than normal, and of low tension; and the heart frequently becomes dilated. The mind is usually clear, but there may be mental distress and insomnia from the pain. The urine is scanty, high colored, and highly acid. The chlorides are diminished, and the urates increased.

The course of the disease is indefinite. An ordinary attack may be followed by complete recovery within two or three weeks, or may be prolonged several months, with numerous relapses. This is especially true where there are cardiac complications.

In childhood the course is still more indefinite. There may be observed only insidious symptoms, which are never acute, but which never subside, the little patient gradually developing one manifestation after another until death occurs months or even a year or two later from cardiac insufficiency. Pregnancy and lactation have a tendency to make rheumatic affections more serious, and death oftentimes ensues from cardiac complications.

It has been mentioned that the manifestations of rheumatism are more varied and insidious in childhood. The principal points of difference have been tabulated by Frederick Poynton in *Osler's Modern Medicine* as follows:

- (1) Onset is more insidious, with prolonged prodromes:
- (2) Manifestations are more numerous:
 - (a) Chorea.
 - (b) Articular pains and swelling.

- (c) Tonsillitis.
- (d) Carditis.
- (e) Erythema multiforme.
- (f) Pleurisy and pneumonia.
- (g) Subcutaneous nodules.

(3) Occurrence of heart complications more frequent, and consequently rheumatism more fatal.

(4) Articular manifestations are frequent, but less severe than in adults.

(5) Sweating is less common.

(6) Nervous symptoms are more frequent, notably chorea, but hyperpyrexia is less common.

(7) There is a greater tendency for the child to drift into the rheumatic state.

(8) Malignant rheumatic endocarditis is less common.

(9) Subcutaneous nodules are much more frequent.

(10) The anemia is often more profound.

The different rheumatic affections will now be considered separately.

Rheumatism of the cardiovascular system: Involvement of the heart is frequent, which is the principal reason why rheumatism is such a serious disease. Cardiac involvement manifests itself as an acute dilatation, endocarditis, or pericarditis. Either may occur independently, but a combination of all three is not unusual. The damage to the heart may vary from comparatively trivial and transient, to a most malignant and troublesome lesion. In acute dilatation the principal symptoms are: Increase in the pulse rate, the cardiac impulse becomes diffuse and extends beyond the mid-clavicular line, cardiac dulness is increased, the first sound at the apex is short and the second pulmonic accentuated, and a soft systolic murmur may be oftentimes heard at the apex. Endocarditis sometimes presents a fibrinous deposit on the valve, which may subside with slight or great deformity; or there may be a chronic fibroid inflammation which may result in great distortion of the valve. In these cases there is most frequently a mitral stenosis. Others may develop malignant or ulcerative endocarditis; but they are fortunately rare, and in such cases empyemic abscesses do not oftentimes occur. The left side of the heart is more often attacked, and one or both valves may be involved. In acute rheumatic endocarditis the symptomatology does not materially differ from such a condition arising from causes other than the diplococcus rheumaticus. While pericarditis is not infrequent, it occurs less often than endocarditis, and when present usually indicates a severe

infection. Pericarditis may be simple, chronic, relapsing, adhesive, or malignant.

The blood frequently shows evidence of marked anemia, and even fatal anemia has been known to develop as the result of rheumatic infection. If protracted, rheumatism may be the cause of arteriosclerosis with its usual lesions. Phlebitis is a rare complication.

Articular, facial, and muscular rheumatism: Rheumatic arthritis is usually polyarticular, and more frequently involves the larger joints; but, in certain cases, only one joint may be implicated. The joints usually show merely a simple synovitis, and there may be little or much effusion; they are usually swollen, red, and tender. In some instances there is great joint pain with few or no signs of inflammation. Rarely does suppuration or bone damage ensue, and the joints almost always later return to normal condition. The tendons are not infrequently involved, and their sheaths may show ganglionic formations, the connective tissue, principally over bony prominences, showing localized areas of inflammation varying in size from a pea to an almond. These are known as subcutaneous nodules. The muscles are oftentimes painful and stiff with localized tender enlargements.

Nervous system: Chorea, with its characteristic group of symptoms, must be regarded as a manifestation of rheumatism in the majority, if not in all, cases. This condition is usually confined to children. Cerebral rheumatism is the most fatal of all complications. The onset may be sudden, or may be preceded by headache, insomnia, delirium and vomiting, these symptoms being followed by stupor and coma. The eyes are wide open, the pupils contracted, and respirations become rapid and irregular. The temperature rapidly rises, even reaching 110° F., and this is soon followed by death. Over fifty per cent. of the patients die, and when the temperature reaches 106° F. there is little chance of recovery. Rheumatic myelitis may occur, but is extremely rare.

Respiratory system: Pharyngitis is a frequent symptom, and follicular tonsillitis oftentimes occurs. A false membrane formation in the throat is possible, but is rare. Rheumatic pleurisy is common, and is usually of the serous or serofibrinous variety. It is a constant symptom of pericarditis. Pneumonia is not infrequent, and usually assumes the bronchopneumonic type. Acute pulmonary edema is rare. The occurrence of bronchitis is inconstant, and laryngeal affections have been recorded.

Skin eruptions: These sometimes occur. The most frequent is erythema marginatum or erythema papulatum. Purpura may be

seen, and a nonpunctate scarlatiniform eruption has been described. Erythema nodosum is frequently seen in rheumatic patients, and may be associated with arthritis and endocarditis; but its relation to rheumatism is uncertain.

Rare manifestations are peritonitis and nephritis. Acute nephritis does not often occur, but albuminuria during the attack or subsequent cyclic albuminuria is not infrequent; and the presence of chronic nephritis in a number of autopsies in protracted rheumatism would suggest the conclusion that this infection may be one of the causes of granular kidney.

The diagnosis of rheumatism may be extremely easy, or it may be practically impossible. I shall discuss the differential diagnosis in childhood and in adults separately.

In children care must be exercised that acute osteomyelitis be not overlooked by attributing the pain and tenderness to rheumatism. In this form of bone disease there are chills, high fever, and sweats, with delirium and intense prostration, the principal tenderness being over the epiphysis rather than over the joint. The pain is intense, and the disease is most serious from the onset.

Acute poliomyelitis oftentimes produces pain and fever. The loss of a reflex, wasting, the absence of swelling in the joints, and the absence of heart disease, will in most cases prevent diagnostic error; but it is often difficult to distinguish between the two diseases in the beginning.

Scurvy should be remembered. It is frequent under two years of age, while rheumatism is very rare. The ecchymosis in the gums, the periosteal swellings, the pallor, the purpura, bleeding from mucous membranes, and the improvement on regulating the diet, should make error impossible.

In congenital syphilis, pseudoparalysis with epiphyseal swellings and pain, may resemble rheumatism; but the history and other syphilitic manifestations will settle the diagnosis. In older children syphilitic arthritis occurs, but is most frequently observed in the knees. It is very painful, protracted, and is usually associated with keratitis, Hutchinson's teeth, and deafness.

Arthritis from Neisserian infection in young children is usually due to infection from the mother, and develops during the first five weeks of life. Ophthalmia is often also present.

In a few cases of monarticular rheumatic arthritis affecting the right hip, the pain has been referred to the appendiceal region.

There are cases of tubercular multiple arthritis which cannot be distinguished from rheumatism, and the diagnosis must depend upon the finding of tubercular lesions elsewhere. In the ordinary

chronic tubercular arthritis there should be no confusion, but not a few cases of this kind have masqueraded over long periods and progressed to a serious stage under the name of rheumatism! Such instances can only be explained by gross ignorance on the part of the attending physician, and there are few errors which are more serious in their results.

There is a group of cases described by Still, with periarticular swelling and muscular wasting, associated with enlargement of the spleen and lymphatics, the patients being pale and emaciated. These cases have been regarded by many observers as a type of arthritis deformans, but they probably represent an entirely different disorder.

Arthritis deformans is rare in children, but there are cases with bony outgrowths and extreme muscular wasting with no affection of the heart.

In regard to the diseases likely to cause confusion in adults:

Arthritis deformans: The tendency to involvement of the smaller joints, the persistence in a joint after implication, the rapid pulse, and the comparative absence of organic heart complications, are important points in distinguishing acute arthritis deformans from acute rheumatism; but some cases present great diagnostic difficulties. As the disease progresses, however, the diagnosis becomes easy, and especially after the characteristic deformities of arthritis deformans make their appearance.

Gout: In cases of acute gout, the history, the tendency to involvement of the great toe and smaller joints, the deformities, the presence of tophi, and the absence of heart disease, will usually enable one to make the diagnosis without difficulty. However, in certain subacute cases the diagnosis may be very doubtful.

Gonococcic arthritis: Contrary to the opinion which has been held for many years, the arthritis due to Neisserian infection is more likely to be polyarticular than monarticular. The larger joints suffer most frequently. The history of infection is of importance. This variety is more resistant to treatment, is not influenced by salicylates, and in severe cases suppuration of the joints with bone destruction frequently occurs. After recovery there are often adhesions with more or less permanent stiffness. The employment of the complement fixation test may serve to settle the diagnosis in doubtful cases.

Influenza may be accompanied by severe pain, dilatation of the heart, sore throat, and arthritis. In influenza, however, the onset is usually more sudden, and if arthritis occurs it is a late mani-

festation. In rheumatism, with a sudden onset, arthritis develops rapidly.

Scarlatinal arthritis closely resembles acute rheumatism.

Typhoid fever may occasionally present arthritis similar to acute rheumatic arthritis, but usually the other signs of an Eberth infection will suffice to prevent error in diagnosis.

Pyemic arthritis may cause diagnostic difficulty, but the chills, the more irregular fever, the great prostration, and the presence of abscesses elsewhere, are usually sufficient points for differentiation.

Syphilitic arthritis may usually be readily distinguished by the presence of other signs of syphilis, and the Wassermann reaction.

In the past there has been a condition occurring in elderly persons described in most text books as chronic rheumatism. We should not look upon this form of arthritis as rheumatism, but regard it as a manifestation of arthritis deformans. It is a safe rule that if deformity results, the cause in most instances is not rheumatism, but arthritis deformans or gout.

To recapitulate: Rheumatism is a general disease due to a specific microorganism.

Arthritis is an important manifestation, but does not occur in every case.

The diagnosis must be made by consideration of the entire symptomatology, and not by the presence or absence of a migratory arthritis.

TOWN PLANNING IN CANADA*

BY CHAS. A. HODGETTS, M.D., L.R.C.P. LONDON, D.P.H., ETC.

*Medical Adviser, Public Health Committee, The Commission
of Conservation, Canada*

Ottawa, Canada

It is not with the hope of being able to add anything to the important question of town planning from a Canadian viewpoint that this paper is presented to the Conference, for up to the present time the most that has been done has been the arousing of a public sentiment and the awakening of municipal and governmental authorities to the fact that grave mistakes have been made, and that enabling legislation is necessary to prevent the continuance

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of these grave errors and permit of good work being done and our towns and cities made healthy and beautiful.

The urban municipalities of Canada have developed very much along the lines of those of European countries, and this is not at all surprising when it is remembered that our country has been peopled from all parts of that Continent, each incoming immigrant bringing with him ideas as to how things should be done, and more frequently than not how they should not be done. Glaring examples of the lamentable mistakes of improper town planning are to be found scattered all over the Dominion, from the Atlantic to the Pacific, and owing to the cosmopolitan character of our townspeople there will often be found the errors of Great Britain, France and Germany, and of the United States concentrated in one particular city or town.

It is a characteristic of the country, ever since its first settlement, that the lure of the West has been the making of money first and all the time, to the destruction of its natural beauties, hence the failure to create anything in the way of the beautiful and the artistic, or that which tends for the betterment of a nation, is woefully lacking.

As we have wantonly plundered our natural resources, thinking only of immediate gain, so in respect to town planning the real estate booster has been and is permitted to exploit farm land and convert it into town sites. You will note the plural, for it is being done wholesale. This conception of the plan and the birth of the scheme being acclaimed in such a manner as to make the public believe that those initiating the schemes were public benefactors, instead of brigands of a modern type. It must be noted here that this work goes on without let or hindrance, there being no central control exercised by any of the central provincial authorities. In some of the provinces the government seems to act as sponsor for every newly created town site by publishing the fact in the official gazette. But this is not all, for governments, both federal, provincial, as well as municipal authorities, have lavished away rights and privileges through the granting of franchises to wealthy corporations, which mar our towns and will prove serious difficulties when we come to carry on practical work in town planning, this being particularly true in the case of the railways of our country.

While the sins of omission and commission have been many, in respect to the birth and growth of our towns, we have been grossly indifferent, perhaps more so now than formerly, in view of the rapid growth of our cities and towns by convulsive injections of thousands of human beings from foreign lands, for without let or

hindrance the one family home of today is converted into the packing box tenement of the one roomed type.

The list of the bad things done could be lengthened and the evils resulting therefrom be enumerated. It is regrettable that they are so many and as a result we find all the previous errors of faulty town planning have been copied into Canadian towns and very little of the good and consequently the evils resulting therefrom are with us today without, as yet, any clean cut and practical legislation whereby present conditions can be mitigated and the further continuance of the errors prevented.

We have, as children, taken it as part of our education that the only economic and correct method—indeed, the only way possible for us to cut up our country into counties, townships, villages, and towns—was that strictly followed by the provincial land surveyor, and bearing the “gridiron” brand. It was thought if we did not follow the lines of latitude and longitude we were hopelessly lost. To confirm this statement you have but to consult the maps of our country, and the plans of our cities and towns, and should you delve deeper it will be found that these faults and mistakes have been costly to the ratepayers, saddling them with expenditures which, under the saner and more rational plan of town planning, would have been prevented.

The adherence to this antiquated method of cutting up land for town purposes—it cannot in any way be designated as town planning, coupled with the improvident custom of municipalities in not looking ahead and providing for and acquiring in advance the spaces which will be required for public use as the town grows and the improvement of roads, upon what is known as the local improvement system, has placed undue burdens upon the town taxpayer and has resulted in “patchwork” in town planning of the worst type. The subject of town planning appeals to the people as a sane and rational thing and there is manifest, from the Atlantic to the Pacific, a desire on the part of many good citizens, a desire that something should be done to make town planning possible.

The problem, so far as Canada is concerned, is one that cannot be solved by any legislation of the Dominion Government, as the power to enact laws having bearing upon municipal affairs is a function of the provincial legislation. If, therefore, we are to obtain anything like uniformity or cooperation, an endeavor must be made to secure similar enactments in each of the nine provinces in the Confederation, with, possibly, some cooperation later on of the Federal Government.

With the object of securing cooperation along the lines just indi-

cated, and the Enabling legislation necessary, the Commission of Conservation appointed a committee to draft a "Town Planning Bill," also a "Housing Bill," which with necessary variations would be applicable to each province, and after it has been submitted to the Attorney Generals for their consideration it will be finally approved and then recommended for enactment by the several legislatures.

It is quite true there exists legislation in some of the provinces upon town planning as in New Brunswick, Nova Scotia, and Alberta for instance, but they lack in some essentials; their chief one being in the failure on the part of the Provincial Government to provide the central authority which must control, and in a sense supervise and direct municipalities in all that appertains to town planning. It is often an easy matter for the legislature to bow to a wave of opinion and place upon the statute books municipal laws, but they overlook the fact that in legislating upon municipal matters the provincial government assumes responsibilities in respect to municipal affairs which up to the present time the provincial governments have failed to assume.

At the present time the provincial authorities are materially lacking in the proper administration of municipal laws. It is true there is a joint attempt at the organization of a central department or provincial bureau along the lines of the Local Government Board system of Great Britain, and this it will be noted is in the new provinces, yet in not a single province is there an efficient department of municipal affairs, with its several branches each properly officiated and correlated. In not a single instance is there anything approaching the system of the Local Government Board. In this respect we have legislation upon municipal matters without the great essential, viz., a central provincial administration.

When we consider the many problems that must be carefully considered in respect to town planning schemes, and the importance of their being launched upon proper lines, it is imperative that the provincial governments rise to the responsibility and reorganize their departments of municipal affairs and incorporate therewith a special branch dealing with Town Planning and Housing.

There are many reasons why it should be so. The country is young as nations go, and we lack the qualified men who have carefully studied the work from the Canadian standpoint, though it is true there are some with us who have a general knowledge of the subject from either a British or American viewpoint. This is good, but it is not good enough. Then above and beyond all, as previously indicated, there is not in the Dominion a single province with any adequate organization which can intelligently consider and

direct municipal authorities similar in character to the Local Government Board of Great Britain or the departments found in the states of Germany.

In a country like Canada it is most essential that this feature of the work should not be lost sight of, indeed if the work of town planning is to be of lasting benefit and be effectually carried out the provincial governments must be prepared to assume this responsibility. If this is not done, and legislation is enacted, there will follow a series of town planning schemes which will be improperly devised and, if carried out without a central provincial supervision, will prove costly, or inefficient, and hence prove a hindrance to a widespread adoption of town planning.

Further, it will not do for Canadian municipal authorities to adopt either British, German, French, or American methods. There must be town planning for Canadian towns suitable to our peculiar conditions. There are basic principles which must be followed, but what is suitable in other countries will not in every case be suitable in Canada. The problems must be carefully studied from the Canadian viewpoint, and what is found best adapted to our wants, molded to suit each particular case. Canadian town planning should be the best that can be devised, and this can only be secured by means of the strong central provincial authority.

We do not want the frills of the American method, which parades in all the noonday effulgence of the city beautiful, and pays no attention to the great essential which is the town healthy. A system which provides for boulevards and parks for the millions, while it permits them being horded together in skyscraper offices and monstrous tenements and apartment houses, is not good enough for Canada.

Nor will some of the works of Continental Europe fill the bill, and in many respects the methods of operation and planning under the British town planners will not quite fulfill our wants.

We must, therefore, be prepared to work out the many and intricate questions involved in the subject upon purely Canadian lines, giving to it our best and most careful thought and study; to do otherwise will mean failure. The field is a good one, the time is most opportune, and we must be content with progress which is the result of thoroughness in study, rather than to make haste along the lines that are not practical.

It is pleasing to note that, notwithstanding our differences, our difficulties, and our disabilities, the people of Canada are today alive to the importance of the subject, believing that a great national uplift will follow the general adoption of proper laws upon the cognate questions of Housing and Town Planning.

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JOHN W. WAINWRIGHT, M.D., EDITOR

Address all communications to
JOHN W. WAINWRIGHT, M.D.
80 Washington Square E., New York

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EDITORIALS

CONCERNING THE INFECTIOUS DISEASES

Knowledge with regard to the infectious diseases has advanced literally by leaps and bounds during the past few years. The advance has not been uniform, but has progressed *pari passu* with the development of new methods, and the creation of fresh incentives. Pasteur and Koch blazed the trail in bacteriology, and since their day the expansion of our knowledge regarding the bacterial infections has been remarkably rapid. In this country, perhaps in the world, Theobald Smith has been the pioneer, and to that truly great man both America and science owe a deep debt of gratitude.

In quite recent years discoveries of the etiology of infectious diseases have been epoch making, and although the practical value of these discoveries has been more in the diagnosis and prevention of disease than in its cure, yet they have been none the less valuable to mankind. Prevention of disease has received an immense impetus, and it appears now as if medical practice of the future lies in prevention, rather than in the treatment of disease. Perhaps the most wonderful results of medical scientific research have been the demonstration that certain diseases are due to ultra-microscopic organisms, "filterable viruses." Simon Flexner and his coworkers of the Rockefeller Institute have been mainly responsible

for this outcome which has rapidly led to a study of many diseases of obscure etiology, and cleared away much of the confusion which existed in regard to them.

Dr. John F. Anderson, Director of the Hygienic Laboratory, U. S. Public Health Service, in an address delivered before the Richmond Academy of Medicine and Surgery, on February 10, 1914, took as his subject the infectious diseases and discussed poliomyelitis, measles, scarlet fever, typhoid fever, whooping cough and typhus fever.

With respect to measles, which it may be said is a world wide disease, is always endemic and often epidemic, and besides a much more deadly disease than it is generally considered to be, Anderson in conjunction with Goldberger proved by laboratory experiments that it is an infectious disease, and that the infective agent is contained in the blood, in the nasal and buccal secretions, and perhaps in the "scales." Of course, long before Anderson and Goldberger demonstrated these facts by laboratory experiments, opinions based on clinical observations had pointed in this direction. Since the publication of the conclusions come to by Anderson and Goldberger different workers have confirmed their findings as to the presence of the virus in the blood of human cases and the susceptibility of the monkey to measles.

It should be remembered that attempts were made without success to demonstrate the presence of the infective agent of measles in the "scales" collected from human cases of the disease from four to seven days after the appearance of the eruption. These findings are of very considerable importance and will bulk large in the prevention and treatment of this very prevalent affection. Again, in whooping cough, it appears that the discovery in 1900 by Bordet and Gengon of the bacillus of whooping cough has been confirmed and extended by Mallory and his coworkers. They have been able to fill the gaps which have heretofore existed for the complete demonstration that the Bordet-Gengon bacillus is the cause of whooping cough.

Concerning poliomyelitis, Anderson points out that the first findings with regard to infection seemed to justify the conclusion that it was disseminated by the transfer of the virus directly from

person to person. Doubt, however, was cast upon the validity of such a conclusion, and Rosenau reported on the possible agency of the stable fly as a transmitter of the disease. Although this work was partially corroborated by Anderson and Frost, subsequent work by these latter investigators have shown that probably the stable fly is not the usual agent by which the disease is transmitted.

It is quite evident that the increase of knowledge regarding the infectious diseases has aided us greatly in fighting them effectively, especially from the standpoint of prevention. One has only to draw attention to typhoid fever to show what a powerful weapon knowledge of the etiology of an infectious disease is in its prevention. Typhoid fever is now absolutely preventable, and it does not seem unlikely that the time is not far distant when a state, county, or municipality will be held accountable for permitting an outbreak of typhoid fever within its jurisdiction. (See Editorial in *THE AMERICAN PRACTITIONER*, "Typhoid Fever An Accident," April, 1914.)

The end is not yet so far as the discovery of the causes, and consequently the means of prevention of infectious disease, are concerned. We are still moving apace, however, and it might not be utopian to predict that eventually infectious diseases will be extinguished, at any rate, many of them. It is gratifying to note that in the war against infectious diseases American research workers have taken a foremost position, and while practical measures to control certain epidemic diseases, typhoid fever in particular, have been lacking in this country there is evidence that, stirred by the medical profession, the public conscience is awakening, and it is to be hoped that in the near future typhoid fever will be as little in evidence here as it is in Great Britain, or other European countries.

THE MEDICAL MIND

The medical mind is trained to deal with minutiae. The eye, to perceive microscopic objects; the ear, to discern the faintest vibrations capable of giving the impression of sound; the hand, to detect the slightest flutter, thrill, or impulse; the mind, itself, to receive and transform the vaguest thought and the most obscure sense im-

pression into a concrete idea and a clear picture, all of which tend to produce in the physician a peculiar psychological state. The micron and the microgram produce definite impressions, while large numbers can be conceived only as multiples of smaller ones. Before the introduction of the bacterial therapy and blood count, two or three hundred were the highest figures that entered into medical calculations, and these, representing the total number of bones or muscles or nerves, diseases or drugs, were rarely used. Even now, when the physician speaks of five million erythrocytes, his mind pictures the microscope slide showing a hundred or two hundred cells. His conception of five million is simply as a multiple of the number he sees on the slide, or perhaps as multiple of a multiple.

With mind and senses trained to grasp the infinitesimal, the big things in life are incomprehensible. The physician is accustomed to deal with single facts, or a few closely associated facts, and he cannot form a collective conception of a number of dissociated facts. He deals with single personalities and, while he may be able to manage large bodies when all is harmonious and everything is running along in fixed grooves, he becomes incapable of handling these bodies when there is any confusion or break in the accustomed routine. Mentally alert in scientific discussion he is as a child in parliamentary practice; a leader in research and experimentation, he has few inventions to his credit and these are almost without exception simple appliances required in his vocation. He does not shine in commerce, manufacture, politics, art, finance, or in other vocations than his own. Even as a teacher of his own branch of medicine, he is often a failure through inability to impart the knowledge he possesses. Of the 420 college presidents in the United States only one has the M.D. degree. True, there are exceptions, physicians who have gained world wide reputations in other fields than medicine. It is, however, a notable fact that when the physician is fitted for other work than medical practice he is generally unfitted for medicine. Doctor Gatling, the inventor of the Gatling gun, was a failure as a physician, a success as an inventor. Doctor Gallinger, of the U. S. Senate, now gives his vocation as public official. Four of the five physicians out of the

435 representatives are politicians who have served more than one term in Congress. Several local physicians who have held political positions have become virtually unfit as physicians and depend upon politics for a livelihood. In the field of finance there is Doctor W. S. Webb, who withdrew from practice shortly after he completed his medical studies, and is now a famous capitalist in New York City. Dr. A. Conan Doyle, the writer, has retired from medical practice. The late Doctor S. Weir Mitchell was an exception to the rule, for he continued in active practice after he took up literature. This was, however, in the nature of a diversion, and did not interfere with his regular vocation. Few medical editors are in active practice, and physicians generally withdraw from practice when they become associated with commercial concerns. The physician who withdraws from active practice to take up other work rarely returns to the practice of medicine. On the other hand, there is probably no other vocation which so thoroughly unfits a man for other work. The medical mind is circumscribed in its views, it has a narrow outlook upon life, it works with a single purpose upon a single object, avoids complications and seeks scientific exactness. Its trend is in the direction of research for scientific truth. Alter its trend by broadening its outlook upon life, changing its purpose or object, or destroying the refinement of sight, hearing, or touch, and we alter the peculiar psychological state which we call the medical mind. Once altered it can never be restored.

EMPLOYMENT, ITS EFFECT UPON HEALTH AND DISEASE

The relation of occupation to mortality has occupied the attention of medical men and scientists for many centuries. No more important subject can be studied, nor is there one which offers so large a field for investigation at the present time. Many facts, and somewhat of statistics, have been published from time to time, but we think that they have not claimed the attention of medical men that the subject warrants. Unquestionably much good would

come from a more thorough acquaintance with the influence of employment in prophylaxis.

That there is a healthful and more active body and mind, less of decay or rust, greater happiness, more cheerful outlook upon life, less of the nervous, a better and more pronounced action of all of the organs of the body in those who are healthfully employed cannot be disputed. Life is prolonged, personal relations are more wholesome and welcome. Unfortunately, all methods of employment are not conducive to health or peace of mind, but much is being done to regulate this. Environment and habits are potent factors in enjoyable employment, occupation also influences largely the benefit of employment. All men and women should be in a measure compelled to work if only for the benefit it assures to mind and body. It improves the moral tone of humanity, as well as insures against faulty and injurious, not to say vicious habits. There would be less pauperism, fewer penal and eleemosynary institutions, the burdens of which are becoming more and more apparent. There would be fewer hospitals, infirmaries, and dispensaries, and fewer demands for charity, following which the moral tone and self reliant nature of man would be vastly improved.

Let us all be employed at something wholesome, healthful and helpful. Occupation will prove a blessing far beyond our anticipations.

SUMMER CLOTHING FOR MEN

A year ago our esteemed cotemporary, *The New York Medical Journal*, made an earnest appeal to the more intelligent young men to inaugurate a new fashion in summer, or hot weather, clothing. We all recognize that the garments now worn during the heated term, the humid, oppressive days of July and August, are uncomfortable and inappropriate. Notwithstanding our almost tropical summer, we obstinately adhere to the heavy unwashable and sticky woolen garments, and stiff straw hats, with high starched collars, all of which are absurdities in no way adapted to our surroundings.

The *Journal* suggested that pajamas, in which enlightened civilized man now lies down to pleasant dreams, contain the hint for

sensible daytime dress. A twopiece suit of soft, unstarched linen or cotton, in somewhat less gay colors than the nocturnal garb, but otherwise similar; the coat should be longer, with trousers of same material to be worn over a light suit of underwear. Such a suit would be moderate in cost, comfortable, modest and hygienic. The coat should button up to the neck (and remain buttoned whenever on the street or in the company of others), have a turn down collar with bow tie, thus doing away with the unnecessary starched shirt and stiff shirt collar. Such a suit could be frequently laundered, sterilized, thus destroying all sources of infection, besides conferring a delightful sense of coolness and cleanliness. But the dictates of fashion and the tyranny of the tailor are potent influences; the tailors, for obvious reasons, would object to so destructive an innovation.

It is to be hoped, however, that some of our young men will get together and defy fashion, as well as ignore the tailors. As for headgear, let us relegate the stiff strawboard now worn to the compost heap.

THE UNKNOWABLE

“There is more betwixt Heaven and earth than was ever dreamt of in your philosophy, Horatio,” exclaimed Hamlet. So much more in fact that we are often constrained to marvel at happenings in everyday life. The materialist will trace all things to cause and effect, while the devout Christian will ascribe many occurrences to Divine influence. Certain it is, however, there are events in our lives which it is difficult to reconcile with the unemotional sentiments of materialism. And yet we are growing in knowledge of the ways of the world even to the small and unimportant things. Mysticism no longer prevails in the minds of the educated. We of the Occident must have a reason, as philosophy, science, and common-sense blaze the way for a clear understanding of what was but a few decades since unknowable. Superstition, bigotry, intolerance no longer hold us in thrall. Things sacred to the ancients, the medieval and more recent times, mysteries incomprehensible excite but a passing interest. We are wont to assure ourselves that all things are either now understood, or soon will be, at the rate of

progress which we witness all around us. Cæsar's "Ides of March," Napoleon's "God Anointed," and inspiration are relegated to the unenlightened ages, while we smile in a superior way at accounts of miracles, asserting all happenings as phenomenon of natural causes and consequent results.

And yet while we hug to ourselves these facts, there are events in our lives which give us pause; there is much to learn; much will be known in future ages not known to us today; but even then all will not be known, for it is not given man to wrest from the universe all that he would seek to know. An ultimate analysis remains yet to be made; phenomena to explain.

INFANT MORTALITY IN NEW YORK CITY

An exchange informs us that the mortality of infants was the subject of a recent article by Dr. Henry Koplik, of New York, in which he said that of 66,527 deaths of all kinds in this city, there were 2,732 deaths of infants in the first four weeks of life, or 4.1 per cent. of all births. That was, in round numbers, one infant in every 25 died before the end of the first month of life. On the face of it that was not so bad a record until it was compared with the mean mortality of infants below one year of age. When this was investigated the rather startling record was found that fully 33.2 per cent. of the deaths occurred before the first four weeks of life were completed. In discussing the causes of death Dr. Koplik said that one was particularly impressed with the fact that of the vast number of infants dying the first four weeks of life fully 60 per cent. died as a result of neglect, ignorance, and the surroundings of poverty. Many infants were adjudged weak when worn out by incorrect feeding and inanition which could well be saved by care from the first moment after birth. The greatest mortality was shown in the first week of life, and Dr. Koplik suggested that it was doubtful whether the average physician, outside of institutions, had attained the skill that he was expected to have at the present day. In connection with artificial feeding, he was of the opinion that infants died not so much as a result of it as on account of the widespread ignorance and even indifference in carrying out the methods of artificial feeding.

POLYPHARMACY

We find an abstract in the *Medical Record*, May 23, 1914, taken from the *Münchener Medizinische Wochenschrift*, of April 14, 1914, of a paper on "Combined Treatment of Syphilis," by Klausner, in which he refers to "a mixture used by a colleague to abort syphilis, the chief active constituent of which is colloidal molecular mercury, and with it are combined salicyl (the supposed radicle of salicylic acid), quinine, sublimate (presumably bichloride of mercury), arsenic, phosphorus and an iodine compound."

The author terms this an excellent mercurial, the rôle of the combined substances not being specifically apparent. It is to be injected intramuscularly. Is not advocated as a substitute for salvarsan, but in connection with that product. The combination is intended in part, at least, to offset mercurialism.

Surely, this is polypharmacy run wild. All the elements rolled into one.

MUSIC AS AN AID IN EXAMINATIONS

We learn that a Mr. Davison, the Organist at Harvard University, has hit upon what he considers a somewhat novel plan of playing to the students on the mornings during the final examinations and has demonstrated the heartening influence of the music during the exacting trials. He found that marches, scherzos, with an occasional fugue, and Handel's Largo, put spur to the spirits and nerved the students for the trial. The students declare that the music helped them greatly.

It is also claimed that the scheme was tried at Wellesley College, and that it prevented nervous prostrations among the young ladies which had prevailed at previous final examinations.

HEALTH OF THE ARMY

The Secretary of War on June 1 issued the following bulletin: "On the 30th day of May the United States Army completed one month's occupancy of Vera Cruz. There have been ashore more than 7,000 soldiers and marines, and not one death from disease has occurred during that period."

IN HOW FAR HAS THE DOCTRINE OF CLEANLINESS AND PUBLIC HEALTH PERMEATED THE MEDICAL PROFESSION?

C. W. Stiles states that this question is asked in good faith. Cleanliness, he says, is at the very root of public health conditions. American medical societies have of late years been passing numerous resolutions endorsing health legislation, and it may therefore be assumed that they are prepared to set to the laity a proper example in cleanliness. He then cites a number of instances, recently observed, which go to show that the rank and file of the profession is not setting a proper example, and from these is forced to conclude that there are in practice a not inconsiderable number of physicians who have exceedingly elementary ideas on the subject of cleanliness.

ANTIQUITY OF LEPROSY

Professor Elliot Smith and Dr. D. Derry, of the Archaeological Survey of Nubia, describe a case which shows all the typical lesions of leprosy. The subject of the disease was found in a Nubian cemetery assigned to an early Christian century. Although the tissues are at least 1,600 years old they cut and stain perfectly, but so far no leprosy bacilli have been found in them, although various forms of cocci are seen in abundance. The authors have had many opportunities of examining the remains of many thousands of ancient Nubians, covering a period of at least 6,000 years, yet this is the first instance they have seen suggestive of leprosy. No certain signs of syphilis have been found, but typical examples of tuberculosis do occur although not abundantly.

AUTOMOBILE CENSUS

It is estimated that, in 1913, there were 1,128,000 automobiles owned in the continental United States. The population, at 2 per cent. increase per annum since 1900, would be about 97,400,000. The ratio is one automobile to 86 persons, or one to about 13 average families. *There were more than twice as many automobiles as there were incomes reported beyond the exemption limit.* Of course, many rich families own several, and many automobiles are commercial, but the fact remains that a great many persons keep automobiles who cannot afford them, and this undoubtedly has an influence on the cost of living and the general complaint of hard times.

DIGEST OF CURRENT MEDICAL LITERATURE

Ether Dressings.—Although the local use of ether is not new, its value as a local antiseptic has not received the attention to which it is entitled, its only recognized properties hitherto having been its rapid evaporation, which renders it a valuable revulsive, and its ability to dissolve fats. As an antiseptic, however, ether is endowed with a property which no other agent seems to possess to an equal degree, viz., that of penetrating into fissures, erosions, cavities, interstices, recesses, etc., and exerting, through its fumes, its bactericidal influence upon pathogenic organisms which the most careful cleansing with the usual antiseptic solutions does not reach. In extensive wounds in which mashed or torn edges and great laceration predominate, for example, the preliminary cleansing is never sufficient to rid the exposed tissues of all contaminating material; in compound comminuted fractures this also tends to delay repair and promote the development of complications. The same is true of infected and suppurating wounds and phlegmons in general, burns, felons, suppurative lymphangitides, and erysipelas. The extent of the lesions or the areas exposed militates in no way against its local use, owing to its nontoxicity; indeed, the only sign of a general action is the somnolence occasionally observed under such circumstances, *New York Medical Journal*, May 9, 1914.

To obtain satisfactory results, however, certain precautions are necessary, upon which Durand, of Paris, *Clinique*, March 13, 1914, recently laid stress after studying the method in a large number of cases. As ether evaporates rapidly, the dressing, after the very careful cleansing of the lesion and the neighboring skin, must be prepared hastily and be so applied as to extend considerably beyond the edges of the injured or diseased area. It should also be made to adapt itself as intimately as possible to the tissues, after being freely saturated with ether and covered with nonabsorbent cotton, since absorbent cotton greatly aids evaporation. The whole should then be protected with an impermeable covering of some sort. The edge of this covering being applied with some degree of tightness either by a special bandage, adhesive plaster, or any other means which the shape of the affected region will allow, the evaporations of the ether will be prevented, and its antiseptic action centered upon the exposed tissues. Such a dressing may conveniently be left *in situ* five or six days, when the wound will be found clean and undergoing resolution.

This treatment has been found efficient in all cases. In lymphangitis and erysipelas the temperature soon falls, while the tissues resume their normal color. In phlegmons the suppuration is arrested early and the pain soon ceases. Although the application of ether to a raw surface causes pain, this lasts but a few moments and is followed by local anesthesia.

Old Age as Affecting the Clinical Picture.—Schlesinger, *Wiener klinische Wochenschrift*, Vienna, February 5, 1914, comments on the scant attention that has been paid to the modifications in clinical pictures for which increasing age is responsible, aside from truly senile affections. For example, among 1,800 cadavers over 60 years old, cancer of the gastrointestinal tract was found almost exclusively in men, while less than a fourth of the cancers of the gall bladder were in the men. Study of this material shows further that old age in itself cannot be the most important factor in cancer, as after 70 comparatively few primary cancers develop. Persons just entering on old age seem most predisposed; in this material, 9.2 per cent. of the primary gastric cancers developed between 60 and 70 and only 4.1 per cent. after 76. Another point brought out is that the power to induce metastasis seems to decline with increasing age when the cancer is located elsewhere than in the pancreas or gall bladder or bile ducts. There was metastasis from the gastric cancer in all but 11 per cent. of the patients between 60 and 65. After 70, 18 per cent., and after 76, 50 per cent., had no metastasis. There was no metastasis in over 66 per cent. of the patients over 60 with bowel cancer. These facts render the prospects of radiotherapy more encouraging for elderly patients.

The clinical picture of infectious processes may be modified by relics from former infections from which recovery seemed complete at the time. They may also have left more or less immunity. This is not the case with streptococci, pneumococci and influenza and colon bacilli; they seem to confer extra susceptibility rather than immunity. One pregnant feature of disease in the elderly is the intensity of the general symptoms while the local symptoms are extraordinarily mild or lacking altogether. The inelastic lung tissue, impaired blood supply, and the way in which one nerve center may lag behind the others, all help in obscuring the local findings. At no other period in life are there so many latent forms of disease, but this is simply because we have not learned to recognize the special signs of trouble at this age. The course of diseases is either unusually short or unusually prolonged in the elderly.

If the elderly survive the onset of angina pectoris, they may live much longer with it than a younger person. But they take far longer to convalesce from an acute disease, and complications on the part of the cardiovascular system are liable at any time. The gravest dangers for the elderly are anorexia and marasmus. He knows of only one instance of recovery from senile anorexia. He says that treatment is futile and the patients succumb to inanition.

The Surgical Uses of Paraffin—Liquid Paraffin as Dressing for Wounds.—Chrysospathes, *Zentralblatt für Chirurgie*, November 8, 1913, found paraffin oil an effectual dressing for sores of all kinds, and reports that he applied it in treatment of wounds in the Balkan War in 920 cases and that the wound healed over in a remarkably short time with a few rare exceptions. Even gaping wounds with exposed bones began to heal at once. The results were even better when he added about 2 per cent. iodoform, when there was severe suppuration. If the gauze sticks, it can be detached by pouring a little more of the oil on it or by using hydrogen dioxid. He expatiates on the advantages of this simple method of treatment, which does away with ointments and time stealing procedures. In some of his cases the temperature dropped to normal after each application of the paraffin, but rose again when the oil was suspended. He has been using this method for some years, having found it also effectual for sterilizing catheters and healing bed sores.

Liquid Petroleum to Prevent Abdominal Adhesions "Postoperative Intestinal Stasis" and the Intraabdominal Use of Oil.—This measure has been known to surgeons for over two years and was suggested by Dr. W. P. D. Wilkie, at the meeting of the British Medical Association in 1911, as a means of preventing the formations of adhesions in acute septic peritonitis. Dr. Burrows, *Journal American Medical Association*, Sept. 6, 1913, "Report International Medical Congress," London, Aug. 6-12, 1913, held that, apart from the gross complications which might occur after an abdominal operation, there were sometimes symptoms of obstruction which, he thought, were associated with regional or segmental gut spasm. This spasm occurred mostly in the small intestine, and probably it could be referred to more or less minute traumatism arising in the manipulations of the operation. The evil effects of these abrasions could be combated by pouring about 6 or 8 ounces of "oleum petrolatum" into the abdominal cavity, so that a coating of oil would prevent adhesions and promote the normal peristaltic move-

ments. He had carried out a series of experiments to show the harmlessness and value of neutral mineral oil so used.

Liquid Paraffin in the Treatment of Wounds.—Auerbach, in the *Medizinische Klinik*, December 1, 1912, reports the use of liquid paraffin on the skin surrounding wounds to protect it from eczema. It is sufficient to thoroughly paint the circumference of the wound over a wide area. This method also prevents the bandages from sticking to the wound and, even though they may be soaked with blood, they almost always fall off of themselves.

Treatment of Dysmenorrhea.—S. W. Bandler, in the *Archives of Diagnosis* for January, 1914, points out that to assure a dysmenorrheic patient that the cervix, because of its length, rigidity, or stenosis, is the primary factor in the trouble is to tread on uncertain ground. To perform a surgical dilatation of the cervix and make it more or less permanent by the use of an intracervical stem or by a cutting operation, without first knowing that the cervix is the main offender, often leads to a disappointment. If one is able, on the other hand, painlessly and without danger of infection or tissue injury, to dilate the cervical canal two or three days before menstruation, or even when the pains have begun, and the patient is thereby relieved of the dysmenorrhea, any surgical procedure then thought necessary can be done with considerable certainty as to the result.

To dilate the cervix painlessly and safely, the author finds most advisable, in office practice, the use of the galvanic current. He employs aluminum sounds of various diameters, always smaller than the size which might be used if a little force were applied. A large plate is applied to the abdomen or under the sacral region, the negative pole being in the uterus, and a current of from five to ten milliamperes is passed for five to fifteen minutes. The intracervical negative pole causes a relaxation of the muscular fibers, the sound thereupon slipping out. At the same sitting, or the next, a somewhat larger electrode may be substituted, and this may be repeated as judgment dictates, the electrode being always drawn out as soon as the patient experiences pain or discomfort. The intracervical pole causes, especially if a white or yellow secretion is present, an oxidation of the secretions with resulting production of bubbles. If the electrode fits too closely in the cervix and there is no egress for this frothy product, an increase of pressure occurs in the uterine cavity and cervix, pain resulting. If one, two, or three treatments on successive days before menstruation lead to a

painless menstrual flow, fairly satisfactory proof is afforded that the cervix plays an important part in the production of pain in the individual case. In many cases the author has, by the procedure described above, given relief from uterine colic.

Pneumonia.—The incidence of fibrinous and bronchocatarrhal pneumonia in the Philadelphia General Hospital is discussed by R. N. Wilson, Philadelphia, *Journal A. M. A.*, May 16, 1914, with special reference to the results of treatment. In a previous paper in *The Journal*, January 24, 1914, he had shown that deaths from all types of pneumonia in the years of 1911, 1912 and 1913 was 61.5 per cent., a far higher figure than seems justified even by the fact that alcoholism and privation had both entered into the experience of the patients. Rather more likely, he says, that a possible cause of this and a still higher death rate, to which reference will be made later, has been the indiscriminate placing of all pneumonia patients in the cold outdoor air. Practically every patient in those years was treated outdoors, whether the patient's temperature was febrile or subnormal throughout, or whether the patient was cyanotic and in respiratory and cardiac distress, or the case was a strictly sthenic one with satisfactory heart and circulatory conditions. During the months of January and February there were treated in his own service nineteen pneumonia cases. Nearly half as many as were handled by all the other physicians combined, and all the cases with one exception ran a course typical of bronchocatarrhal pneumonia. All patients were treated in as fresh air as possible in the warm general wards, as a special ward was unobtainable owing to the general overcrowding. Sufficient bedclothing was supplied to conserve heat and supply energy. Sixteen of the number recovered and three died, two of the latter being nearly moribund on reception and dying shortly after. The other was a confirmed alcoholic with an extensive cardiac lesion of probably luetic origin, who died suddenly while apparently on the way to recovery, probably from pulmonary embolism. For the first three months of 1914, the pneumonia mortality in this service was 16 per cent. Wilson pleads for a thorough examination of every pneumonia case and the experience warrants him in considering the preponderating type of pneumonia to originate bronchiolar or in a peribronchiolar process. He doubts whether there has been or whether there ever will be seen a truly sthenic vitally vigorous sufferer from bronchocatarrhal pneumonia, and he pleads against the exposure to cold air of these patients.

Keratin in the Treatment of Hepatic Cirrhosis.—S. M. Tzypkine, in *Semaine Médicale* for December 10, 1913, is stated to have obtained good results in three cases of hepatic cirrhosis by administration of keratin, which he had found experimentally to have the property of combining with gelatin, the chief constituent of connective tissue. The procedure adopted in these cases was as follows: Caffeine was first given for three or four weeks in the dose of 3 grains (0.2 gram) three times a day. Upon making sure that this treatment was inefficient, keratin was begun, the caffeine being still continued for a time, however, to favor digestion and absorption of the keratin. At first the daily dose of the latter was five tablets, each containing 7.5 grains (0.5 gram). The keratin sometimes causing diarrhea, 1 to 5 cachets of 7.5 grains (0.5 gram) of bismuth subsalicylate were also ordered. As the portal circulation improved, and the digestive disturbances grew less, the dose of caffeine and bismuth was reduced, while that of keratin was gradually increased to ten and even twelve tablets a day.

The first case treated was that of a man, fifty five years of age, with considerable ascites, dilatation of superficial abdominal veins, and edema of the lower limbs and scrotum. Three tapplings had been necessary in one month. After starting the keratin treatment, no further tapping was needed. Five months later, when the patient was discharged, all edema and venous ectasia had disappeared, and the abdominal circumference was much less. In a second case, in a man of thirty five years, the results were even better, the ascites being completely resorbed. The keratin was, moreover, perfectly borne, and bismuth never had to be given. The third case, in an alcoholic patient of twenty six years, who had been tapped twice in eighteen days. Under keratin, the ascites disappeared completely in two and a half months, and four months later there had been no return of fluid. The abdominal circumference was reduced from 104 to 80 cm., the superficial veins, constituting a distinct "caput Medusae," could no longer be seen, and normal digestive functions had returned—*New York Medical Journal*, April 4, 1914.

Camphor in Pneumonia.—William J. Cruikshank's (*New York State Journal of Medicine*, February, 1914) communication consists mainly of citations from a previous paper by August Seibert, reporting thirty six cases of pneumonia treated by subcutaneous injection of very large doses of camphor. Doses up to thirty or forty grains at a single injection were repeated as often as every

four to six hours. These cases gave practically one hundred per cent. of recoveries, and a striking feature was that the temperature always fell by slow lysis. To these observations Cruikshank adds his own on six patients, all of whom recovered, and the cases of all of whom also defervesced by lysis. Seibert produced evidence of the specific action of camphor against pneumococci, experiments made for him which showed that camphor in dilutions of one to 10,000 inhibited growth of these organisms in culture media. He does not state that it is thus bactericidal in human blood, but suggests that it does not have such an action except on those few organisms which pass directly into the circulation from time to time. He shows that it has no effect on pneumococci in parenchymatous organs, such as the kidney. He believes that camphor renders human blood an unsuitable culture medium for pneumococci. It was possible to protect laboratory animals from fatal doses of pneumococci by giving them camphor shortly before their inoculation, or within a few hours thereafter. It is suggested that camphor be given subcutaneously in oil, in doses of thirty six grains for each hundred pounds of body weight; the earlier administration is begun the more rapid the cure. •

Emetine in the Treatment of Intestinal Hemorrhage.—Edhem, in *Bulletins et mémoires de la Société médicale des Hôpitaux de Paris* for June 26, 1913, reports two cases of intestinal hemorrhage in which the ability of emetine was distinctly shown. The first was that of a man suffering from hyperchlorhydria and mucomembranous enterocolitis, and presenting no signs of intestinal neoplasm or tuberculosis, who had had repeated attacks of pronounced hemorrhage, preceded by colicky pain, but unaccompanied by diarrhea. The last attack continued two months, without relief from a diet of milk and vegetables and the administration of calcium chloride, ergot and opiates. After an initial injection of 0.04 gram, two thirds of a grain, of emetine, however, the hemorrhage at once began to lessen. Injections were repeated every two or three days, and although a particularly copious hemorrhage followed the fourth injection, the fifth injection, which proved to be the last, overcame the hemorrhage completely and permanently, notwithstanding the fact that in the succeeding six weeks the patient's dyspepsia continued.

In the second case, very similar to the first, hemorrhage ceased after a single injection of emetine. Two more injections were given in order to be certain that the result would be maintained.

Extra Nourishing Food for Children.—Engel, *Berliner klinische Wochenschrift*, March 2, 1914, places great reliance on cream in the forced feeding of children, as this supplies large amounts of calories in a concentrated form. He estimates that half a liter of 15 per cent. cream represents 800 to 900 calories. The secret is to have the daily ration of cream taken all at one time. During the day the child is fed as usual, but two or three hours after supper, when the child is already in bed, he drinks the glass of cream, and takes it with relish. A boy of 10, for example, requiring about 1,250 calories, can take half of them in this form. Repose is an indispensable factor in assimilation and utilization of the maximum proportion of nourishment, but this is too often neglected in the forced feeding of children. They should recline all the time, or at least three or four hours, all preferably out of doors. Nervous, restless children can be kept in a darkened, quiet room; if this alone does not suffice, he does not hesitate to give some mild sedative during the first day or so.

Some Notes on Hay Fever.—H. L. Ulrich's conclusions, *Journal of the American Medical Association*, April 18, 1914, are as follows: Autumnal pollinosis can be treated in three ways: 1. By removal of the cause, namely, eradication of ragweed; 2, by the removal of the patient from the ragweed environment; 3, by producing antihypersensibility. The author's point of view differs from that of Dunbar, Noon and Freeman, and Clowes, who hold that they are dealing with an infectious process similar to bacterial infection; while he contends that the process is of the nature of a protein toxicosis. In a number of cases he found pollen toxin fairly successful. He believes that in hay fever, more than in any other clinical entity, there is a fruitful field of research in those vague conditions grouped under the term "hypersensibilities."

Eugenics and Gynecology.—J. Veit, *Deutsche Medizinische Wochenschrift*, February 26, 1914, discusses the lack of positive knowledge in the field of heredity, which makes it impossible to formulate any rules with regard to the limiting of offspring. He cites the case of a chondrodystrophic dwarf who was delivered by Caesarean section of a perfectly formed baby, while a well developed girl of eighteen gave birth to an anencephalic monster.

Have the Early Claims for Salvarsan been Realized?—C. Morton Smith, in the *Boston Medical and Surgical Journal*, February 19,

1914, says that, although the early hope of curing syphilis with a single massive injection has not been realized, this remedy is potent in healing all manifestations on the skin and mucous membranes, is more efficacious than mercury in changing a positive to a negative Wassermann reaction, and its prompt action on early moist lesions has a decided effect in limiting the spread of contagion. He believes the early fears of damage to the cranial nerves to be groundless, and that when it is given in proper amounts at proper intervals, it is practically devoid of danger.

Substitution of X Rays for Radioactive Substances in Deep Therapy.—Salzmann, in *Deutsche Medizinische Wochenschrift*, December 25, 1913, reports having investigated the different metals which give rise to secondary rays when acted upon by x rays. He found that metals with an atomic weight between 107 and 120, radiate the greatest amount of secondary rays, metals for the most part hard. Cadmium is the element most suitable for this purpose, and may be used as a substitute for radium in the treatment of deep lying tumors.

Poliomyelitis and the Stable Fly.—Sawyer and Herms (*The Journal of the American Medical Association*, August 16, 1913) in seven experiments were unable to confirm Rosenau's work and were unable to transmit poliomyelitis by means of the bite of the stable fly from one monkey to another. They, therefore, doubt that the fly is the usual agent in spreading this disease in nature.

Anemia in Childhood.—R. A. Chisholm, *Practitioner*, May, 1914, reviews the various diseases that are well known to be productive of anemia; when all of these causes have been excluded we are left with a considerable group of cases of indefinite origin, in which no very precise and obvious reason can be found for anemia. Many children, especially girls, grow too fast, or at least so fast that their blood forming organs are unable to keep pace with the demands of their tissues, and anemia results. For such the best prescription is to set them free from all work and let them run wild in the country, under the eye of some one who will not let them overtax their strength; the same treatment is most useful when anemia is due to overstrain at school.

THERAPEUTIC PROGRESS

Inhalation of Tincture of Strophanthus in Cardiac Insufficiency.—J. Moczulski, *Wiener Klinische Wochenschrift*, January 8, 1914, has found the inhalation therapy recommended by Hering of decided value. Occasionally one inhalation is followed by decided relief. This method of application is to be preferred to other methods, since it is possible to observe an effect with much smaller doses, even as little as ten drops occasionally proving efficacious. The blood pressure is remarkably influenced, the diastolic pressure being decidedly reduced.

Cocaine as a Respiratory Stimulant.—G. E. Pettey, *Southern Medical Journal*, April, 1914, from a rather extended experience, has come to regard cocaine as the most prompt and efficient of all respiratory stimulants. He is accustomed to give half a grain hypodermically, repeating the dose as required. Two illustrative cases are cited. One was in a patient suffering from alcoholism with threatened respiratory failure, who had been in a semi-comatose condition for two days; the other was a case of paraldehyde poisoning.

Mexican Licorice (*Lippia mexicana*, *Lippia dulcis*).—M. Ia. Breitman, *Roussky Vrach*, November 30, 1913, observed very favorable results from the administration of lippia in cases in which a mild expectorant and demulcent was indicated, such as dry, irritating cough, later stages of catarrhal pneumonia, measles and whooping cough, laryngitis, pleuritis, irritating cough of smokers and singers, and the early stages of tuberculosis.

Acetonal Suppositories in Proctitis.—W. Jungerich, *Berliner Klinische Wochenschrift*, February 23, 1914, suggests the use of acetonal suppositories containing two per cent. alsol and acetone chloroform salicylic acid ester in ten per cent. solution for the treatment of proctitis. The substance has the advantage of being anesthetic as well as disinfectant in action.

Hot Air in Treatment of Wounds.—Kutner, *Deutsche Zeitschrift für Chirurgie*, Leipsic, February, 1914, noticed that in places with low humidity wounds heal exceptionally quick, and he applied this principle in aseptic treatment of granulating wounds by playing a jet of hot air on them. Poth gives here the details of fifty two cases in which this method was applied, with what he calls ideal results. The only objection is that the Kutner apparatus for the purpose is expensive. It heats and cleans the air and is applied for three quarters of an hour once a day.

Embarin in Ophthalmological Therapy.—R. Possek, *Berliner Klinische Wochenschrift*, February 16, 1914, describes the use of embarin, a solution of mercurosalicylsulphonate of sodium. It contains three per cent. mercury, with the addition of one half per cent. acocin for its local anesthetic effect.

He has obtained very good results with its use and finds the method of application very simple.

Effect of Adrenaline on the Venous System of the Heart.—A. A. Grube, *Roussky Vrach*, December 14, 1913, reports on experimental investigation of the action of adrenaline on the veins of the isolated heart. The results indicate that adrenaline increases the volume of blood passing through the veins by stimulating the heart muscle.

Pankreon.—A grayish, nearly odorless powder with a slightly acid taste, contains about 8 per cent. of tannin. It is obtained by the action of tannin on pancreatic substance. Is said to have a strongly tryptolytic, amylolytic and steatolytic action developed in the alkaline intestinal fluids in which it is soluble. Useful in disturbances of digestion, diarrheas, dysentery, membranous and catarrhal colitis, gastritis and jaundice.

Arthigon.—R. Frühwald, *Medizinische Klinik*, November 2, 1913, found that 0.04 to 0.05 gram arthigon injected intravenously into women having gonorrhea produced in the majority of cases a reaction of at least 1.3° C. rise in temperature, while women not having gonorrhea showed no reaction. The reaction must be considered specific, and made use of together with microscopical findings. Reaction is no doubt due to the presence of gonococci, not to a previously healed gonorrheal infection. As repeated injections compromise the reaction, it is to be considered positive with the first injections only. It is possible that the reaction will achieve the healing of the infection in women.

Digitalis in Heart Diseases.—Richard Douglas Powell, *Practitioner*, May, 1914, points out that digitalis is not efficient in all diseases and disorders of the heart. In acute injuries, and such acute affections as pericarditis, endocarditis, and myocarditis, it is of little or only of quite subordinate value. In chronic diseases of the myocardium of syphilitic, alcoholic, or coronary origin, the use of digitalis is of secondary importance and is often distinctly contraindicated. It is in chronic valvular disease with failing power of ventricles that digitalis and, in a less degree, the class of drugs which it represents, are especially indicated; in fatigue of the heart after acute disease or strain it is also of great value. Indications are signs of failing power, and in the endeavor to strengthen the heart we must bear in mind the requirements of each case. The management of various forms of cardiac disease are discussed, together with the adjuvants of digitalis. In a certain class of cases he has found quite small doses to be beneficial.

Use of Dried Milk.—A. E. Naish, *Pediatrics*, May, 1914, says that we have in dried milk a food which contains the same substances as cow's milk, and in the same proportions, except when humanized, a milk which is digestible to a wider range of infants, which has obvious advantages of storage and distribution, and which appears to have no tendency to promote any of the later nutritional disorders.

MISCELLANY

FRANCOIS RABELAIS

Under the title "The Atmosphere of the Renaissance as Portrayed in Some Early French Writers," in the *Boston Medical and Surgical Journal*, June 18, 1914, we find a most interesting communication written from Paris and signed "S" referring mostly to Rabelais's knowledge of medicine. The thought comes to us that not all of our readers may have an opportunity to consult the above mentioned journal, and that, therefore, a full abstract of the article may prove of more than ordinary interest.

The writer informs us that the first fifteen years of Rabelais's adult life were spent in convents, where he acquired a marvelous familiarity with the Greek and Latin classics, as well as an insight into natural sciences, including botany, as well as astrology. He then laid aside the habit and undertook a round of the different universities of France, studying law, medicine and the liberal arts, ending finally as a physician. The latter led to his being attached to the embassies of Italy, Rome, the Pope, and various exalted personages, all of which gave him a breadth of view and field of experience quite out of the ordinary for the time.

Rabelais is generally cited as the leading exponent of the art of using the most withering satire without poison or personal animus. Each of the liberal professions comes in for its share in turn, the Church, the Sorbonne, Medicine, and in particular the Law. He seems to have criticized and condemned only because he saw the flaws and realized they deserved to be held up to opprobrium. It would be difficult even today to take a more just view of the foibles of the first half of the sixteenth century. Law he reduced to pulp and then cast the pulp into the furnace at white heat. With the Church and the Sorbonne, his satire approaches good humor. With medicine, however, his tone is almost kindly, as of a parent scolding a wayward child. This may be due to the fact that he considered himself a physician, as all of his later work was signed maître François Rabelais, docteur en médecine. In the fifth book, however, is a vitriolic diatribe on the lawyers in the guise of the chasfourrez wherein he writes of the ignorance, impudence and imprudence of physicians, surgeons and apothecaries, but it is evident that he wished to prove that the lawyers were the blackest of the black and used the mild terms of reproach to physicians in contrast to the harsh language applied to the lawyer.

"Consider what a strange world this is," he writes: "we entrust our souls to theologians, who for the most are heretics; our bodies to the physicians, who all abhor medicine and never take any; and our belongings to the lawyers, who never go to law among themselves." The second phrase in this quotation is accounted for by Pantagruel, as follows: "I can only approve of it, as I note that

physicians lay so much stress on prophylaxis and precautions as regards their own health, that they stand in no need of curative treatment by means of drugs." It must be admitted that there seems a surprising amount of sound common sense in *all* of this, for the period in which it was written.

Rabelais was a strong partisan in having the chief meal at night, and of eating but sparingly at noon, "no more than sufficient to stay the clamors of the stomach, which is the only real way to live, based on good and sound medical precepts, whatever a lot of fool doctors brought up among the Sophists may say to the contrary." So this point was in dispute even in those days. In the discussion between Frère Jean and Gargantua as to the advisability of drinking wine early in the day, the latter affirms that "the practice is in complete disaccordance with medical teaching." This, however, is as good as no argument at all, in the eyes of the monk, who forthwith proceeds to crush his opponent. The jolly friar had concluded a most practical pact with his digestive organs, one that will awaken feelings of envy in many a bosom. "I have," says the friar, "arranged matters with my appetite in such a way that it always goes to rest when I do, and to this end I take the measures suitable during the day; but, on the other hand, it is equally ready to get up when I do."

Regarding insomnia Rabelais puts into the mouth of his *enfant terrible*, Frère Jean, views that are sadly unorthodox. Gargantua being quite unable to sleep, the friar remarks: "Personally, I never sleep really well except during a sermon or at prayers. Let us commence, you and I, the seven psalms, and see whether you are not soon asleep." Beginning with the first psalm they were both sound asleep by the time they reached the Beati Quorum! For seasickness Rabelais advises copious libations. "They all drank the travelers' health, and all the travelers drank theirs, which was the explanation of the fact that none of the assembly became seasick."

Sweating and inunctions, carried to the point that the patients' teeth rattled in their heads, and they foamed at the mouth with excess of saliva, was the treatment for lues. Rabelais was curious to learn of the frequency of the disorder, and was informed by Epistemon, after his return from Tartarus, that Pope Sixtus's duty was to administer the inunctions. "What," said Pantagruel, "do they have that disorder *there*?" "Certainly," replied Epistemon, "I never saw so many before: there are more than a hundred million of them; for, believe me, those that do not have it in this world get it in the next." (Sheol.) Pantagruel gives an account in Book II, chapter 33, of his own encounter with the specific catarrh connected with the Neisser microorganism. In this account he refers to treatment at mineral springs.

In conclusion we will relate a most marvelous feat in surgery. After one of their many combats Epistemon was found dead, with his head completely severed from his body. Panurge, however, was equal to the occasion, the victim's body being still warm. Panurge clasped the head to himself so that it should not be exposed to the wind or lose heat; he carefully washed both surfaces of the section with fine white wine, powdered and anointed them,

and then adjusted vein to vein, nerve to nerve, and spondyle to spondyle, so that there should be no torticollis. He next placed 15-16 sutures all around to prevent its falling off again and ended the operation with an application of what he called "resuscitating ointment." Whereupon the patient breathed, opened his eyes and was given a large draught of white wine and burnt sugar.

We are wondering whether Dr. Carrell was acquainted with this operation before coming to the Rockefeller Institute.

TO PREPARE A PLACE FOR THEM

With these words Rev. Mr. Hahn took leave of his little flock: "Brothers and sisters, I come to say goodbye. I don't think God loves this church, because none of you ever die. I don't think you love each other, because none of you marry. I don't think you love me, because you haven't paid my salary. Your donations are mostly fruit and wormy apples, and by their fruits ye shall know them.

"Brothers, I am going to a better place. I have been called to be chaplain of a penitentiary. I go to prepare a place for you, that where I am there ye may be also. May the Lord have mercy on your souls. Goodby."—*Indianapolis Medical Journal*, April, 1914

The soft thud and patter of rain upon the roof are as musical to the imaginative listener as is any symphony. Monotonous dripping on thick leaved trees soothes one's weakness, and makes the importunities of life seem easily resisted. One can be lulled to fair visions during a transient spring shower and gain the sense of sharing the destiny of nature.—*The Atlantic Monthly*, April, 1911.

Even yet a June bug gives me a thrill, and the grip of his horny legs on my finger will set my associative memory working as will few things else. For me he is a living question, a puzzle, a hard little lump of primeval nature. Above all, he is a scarab. Around his foolish head lingers a glory visible only to the mind's eye, but made up of vestiges of Karnak and Thebes, of Isis and Orus and the dog Anubis.—*The Atlantic Monthly*, April, 1912.

PROPHECY OR PETITION

The following verse was written by Dr. S. Weir Mitchell but a short time before he laid him down to sleep:

I know the night is now at hand,
 The mists lie low on hill and bay,
 The autumn sheaves are dewless, dry,
 But I have had the day.
 Yes, I have had, dear Lord, the day;
 When at Thy call I have the night,
 Brief be the twilight as I pass
 From light to dark, from dark to light.

BOOK REVIEWS

Infant Feeding. By CLIFFORD G. GRULEE, A.M., M.D., Assistant Professor of Pediatrics at Rush Medical College, Chief of Pediatric Staff, Cook County Hospital. Second Edition, Thoroughly Revised. Octavo of 314 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.00 net.

This the second edition of Grulee's *Infant Feeding* is timely and a welcome text and reference work upon this much discussed and—more the pity—little understood and most important question. It has been asserted time and time again and the assertion proven beyond a doubt that the large mortality of infants is almost wholly due to ignorance in feeding. Every reason but the right one is given by parents for their failure to raise their children. Even physicians without special training in pediatrics do not always appreciate the importance of infant feeding. It is becoming more and more evident that the mother's milk is not always the best nourishment for the child, thus necessitating resort to artificial feeding. If this is properly accomplished the infant will thrive satisfactorily. But the general good care must be given with properly balanced, clean food at proper intervals. Dr. Grulee's work shows conscientious study and his teaching seems to us wise. We commend the work to all physicians.

Dorland's American Illustrated Medical Dictionary. A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Science, Nursing, Biology and kindred branches; with new and elaborate tables. Seventh Revised Edition. Edited by W. A. NEWMAN DORLAND, M.D. Large Octavo of 1,107 pages, with 331 illustrations, 119 in colors. Containing over 5,000 more terms than the previous edition. Philadelphia and London: W. B. Saunders Company, 1913. Flexible leather, \$4.50 net; thumb indexed, \$5.00 net.

The fact that this work has reached the seventh edition is evidence of its popularity; that over five thousand new terms have been added shows that it is the aim of the author and publisher to keep it abreast of the times. Medical science advances with wonderful strides; the terminology of necessity increases in all branches of medical and collateral sciences, as is in evidence in this volume of over eleven hundred octavo pages with 331 illustrations, 119 in colors. Terms used in medicine, surgery, dentistry, pharmacy, chemistry, veterinary science, nursing, biology and kindred branches, with new and elaborate tables are included. Diphthongs and hyphens have wisely been omitted. Pronunciations and derivations are given, and all terms fully and correctly defined. Paper, type, binding, etc., are all that could be desired. We predict an increased popularity for the American (Dorland) Medical Dictionary due to the fact that it is up to date and complete.

PAMPHLETS AND REPRINTS RECEIVED

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BO-CAR-AL

Bo-Car-Al, a scientific mixture of well known and approved antiseptics; nonirritating, with a refreshing not unpleasant odor, which possesses a wide range of usefulness as a surgical dressing powder, whose extensive use by physicians and surgeons for a number of years has proven it superior to all ordinary dressings. Its application either in powder form or in solution is not only antiseptic, but curative in all local surgical procedures, without injurious effects upon the healthy skin or other tissues.

Bo-Car-Al, Sharp & Dohme, is composed of C. P. boric acid, alum, phenol (carbolic acid), eucalyptol, methyl salicylate, menthol and thymol in proper proportions thoroughly mixed by prolonged trituration. It does not stain the tissues or clothing, has no disagreeable odor, is a pronounced deodorizer and is soluble in water.

SPECIFIC USES

As a powder, Bo-Car-Al is an ideal dressing for infected wounds, sores of all kinds, cuts and burns. Being without unpleasant odor, it is especially valuable as a dressing to venereal ulcers, indolent, foul varicose or tibial ulcers; in fissures of the anus, pruritus ani and other painful rectal diseases, as it is a stimulating cicatrizant and anesthetic.

As a spray, in catarrhal conditions of the nose and throat, it corrects excessive discharges of mucus, deodorizes and sterilizes the cavities in ozena, rhinitis and purulent discharges, promoting the re-establishment of normal function of the tissues.

As a gargle for the mouth and throat it relieves the pain and inflammatory conditions in tonsillitis and pharyngitis, the ordinary sore throat and corrects foul breath. It is also very successful in stomatitis of various kinds and for retraction and ulceration of the gums and pyorrhea alveolaris (gingivitis or Riggs disease).

As a vaginal douche it is palliative, sedative, antiseptic and curative. It restores proper function and is therefore serviceable in vaginitis, specific or otherwise, in ulcerations of the os uteri, vaginal catarrh and leucorrhea. Through its deodorant properties it corrects foul discharges from the uterus or vagina, while through its antiseptic effect it is curative in these abnormal conditions, including excoriations and pruritus.

Bo-Car-Al is applicable in the excematous and itching skin of infants from any cause. It can be applied freely, pure powder as a dusting powder.

Directions: When applying the Bo-Car-Al as a powder, sprinkle over the surface and apply a covering of absorbent cotton or aseptic gauze to keep it in place. Change daily if needs be.

For use as a gargle or spray, use half a teaspoonful to a goblet of lukewarm water.

For a vaginal douche, one to two teaspoonfuls in a quart of warm water.

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ORIGINAL ARTICLES

FRACTURES INVOLVING THE MAJOR ARTICULATIONS OF THE LOWER EXTREMITY*

BY J. BION BOGART, A.M., M.D., F.A.C.S.

Brooklyn, New York

*Attending Surgeon Kings County, Methodist Episcopal, and Jewish
Hospitals*

In addition to the dangers incident to the management of all fractures, those in the vicinity of joints involve the further responsibility of preserving the joint functions whenever this is possible.

Since the introduction of the X-ray and the Lane plate our responsibility in the treatment of fractures has increased very greatly. Results which previously would have been accepted without question are now made the basis of malpractice suits. Within the past year, a competent surgeon of Long Island, sued on account of alleged negligence in the treatment of a fracture of the lower end of the shaft of the femur, was found guilty and damages in excess of \$11,000 were assessed against him. "In the course of the trial the medical testimony of the plaintiff admitted that the treatment as conducted by the defendant was a proper and recognized form of treatment, and that the failure of the defendant to suggest the calling in of an X-ray expert constituted the sole basis for the charge of neglect."

"In his charge to the jury the judge called attention especially to the fact that the defendant had failed to suggest the taking of an X-ray, after the failure of the hospital apparatus, by a specialist from New York (25 miles distant), and, in the opinion of the defendant's counsel, it was the special prominence given to this fact that led to the unfortunate verdict."

*Surgical Clinic held at the Kings County Hospital, October 2, 1913.

Other testimony which I shall not take time to relate, showed that the X-ray had nothing to do with the result in that particular case and I only refer to it because the absence of an X-ray examination made such an unfavorable impression on the learned judge.

Since learning of this verdict with its attendant circumstances, I have decided to refuse to treat any fracture in which I could not have the advantage of a satisfactory X-ray examination unless the circumstances surrounding the case are such as to make such an examination impracticable. If the patient cannot afford to pay for such an examination he cannot afford to employ me, and I cannot afford to attend him as a private patient. He should, therefore, give us both the protection of a hospital or public clinic, where such an examination can be had at a minimum cost or, in exceptional cases, without cost.

We shall present for your consideration this morning two very important and interesting cases, one involving the ankle and the other the knee joint.

In both of these cases all efforts to secure and maintain satisfactory reduction by manipulation under anesthesia and the application of suitable retentive apparatus have proven unavailing, and it is now our intention to resort to open operations for the relief of the persisting deformities.

The importance of confirming the success of efforts at reduction by subsequent X-ray examinations is well shown in the succession of radiographs which, as I shall presently show you in connection with the treatment of these cases.

CASE I. DISLOCATION OF THE LOWER EPIPHYSIS OF THE TIBIA WITH FRACTURE OF THE FIBULA

History: The patient is a girl of 11, who was admitted August 14, 1913. A few hours before admission, while playing with other children in a swing, she fell in such a manner that the seat of the swing with the other children upon it imprisoned her right leg between it and the ground. She was unable to arise.

Examination of the right ankle showed marked swelling and ecchymosis, with eversion of the foot (see Fig. 5). Crepitus was present over the lower end of the tibia and fibula. The examination was exquisitely painful. Radiographs taken on admission revealed a fracture of the fibula about two inches above the ankle joint and a dislocation of the lower epiphysis of the tibia with fracture of the outer aspect of the tibia permitting the foot to be dislocated outward and slightly forward. The radiographs (Figs. 6 and 7), although taken after attempts at reduction, show substantially the condition on admission.

My colleague, Dr. Edwin H. Fiske, who was in charge of the service during August and the first half of September, made two unsuccessful efforts to reduce the deformity under ether. He then sent the patient to the operating

room with the intention of doing an open operation but, on account of an abrasion of the skin at the heel, produced by the plaster of Paris cast applied after attempts at reduction, he concluded to postpone operation because of the danger of infection, hence the delay.



FIG. 5

It is now nearly seven weeks since the injury and union in the faulty position has already taken place.

The radiographs (Figs. 6 and 7) show the deformity very accurately. That on the left (anteroposterior) shows the fracture of the fibula and the separation of the epiphysis of the tibia with the outward displacement of the foot; that on the right (transverse) reveals the fracture of the outer border of the lower extremity of the diaphysis of the tibia with forward dislocation of the foot. Per contra, while the lateral view shows the fracture of the fibula

and suggests the dislocation of the lower epiphysis of the tibia, it does not make the latter plain and does not so much as hint at the lateral displacement, which is by far the most important feature of the case. Neither of these were seen in the anteroposterior radiograph. We have here a striking illustration of the necessity of taking at least two views of every fracture as nearly as possible at right angles to one another, as it is only by so doing that the whole truth can be shown.



FIG. 6

FIG. 7

By inspection you can see that the lower extremity of the diaphysis of the tibia projects under the skin on the inner side of the leg and threatens to perforate it. Because of the fact that the line of direction falls entirely within the base, as soon as this patient began to walk upon the foot in its present position she would develop the worst sort of a painful flat foot.

We are therefore fully justified, I think, in resorting to an open operation for the relief of this deformity.

Note. A vertical incision was made over the internal malleolus. The parts

were found to be firmly united, in the position shown in the radiographs. An osteotome was introduced and the tibial epiphysis separated. The union of the fibular fragments was broken up by forcible manipulations and the foot with the attached fragments of the bones of the leg thoroughly freed so that reposition could be satisfactorily attained without tension. The wound was then closed with silk worm gut sutures without drainage and the leg handed to an assistant to hold in the over-corrected position until the dressings and a plaster of Paris case could be applied.

CONTINUATION OF REMARKS BY DR. BOGART

It must be borne in mind that the foot has a tendency to be dislocated outward and forward so that it is necessary for us to be careful that the deformity does not recur while we are applying the dressing and the cast.

There is less danger from infection from this operation because we have not introduced any foreign body, which is always to be avoided whenever possible. Sometimes nails and plates have to be removed. There may be no frank infection but a rarification of bone takes place without the usual signs of inflammation and they become loose.

I think you will all agree with me that it would have been impossible to reduce this deformity without an open operation.

Note. After being taken to the ward the leg was suspended in a vertical position for twentyfour hours to minimize the tendency to congestion and hemorrhage and, on the following day, two radiographs were made. The position was not satisfactory. The case with the radiographs was shown at the next clinic, one week later.

REMARKS BY DR. BOGART, OCTOBER 9, 1913

We have had radiographs taken of this case after having been operated upon, which I will now show you.

As you will see by looking at the plates (Figs. 8 and 9), the lateral displacement has not been corrected, while anterior posteriorly the deformity has been increased. The danger to which I called attention during the applications of the dressings following the operation last week has here been fully realized. Either my assistant in holding the foot failed to maintain the reduction, or the bulk of the dressings was so great before the cast was applied that the recurrence took place subsequently. A glance at this radiograph (Fig. 9) taken laterally is sufficient to convince any unprejudiced observer that most if not all of the deformity is due to the faulty position in which the foot was held during the application of the cast, for it would manifestly have been impossible for so great an anterior displacement to occur otherwise. Not only is the whole foot with the tibial epiphysis displaced farther forward than

it was originally, but the gap between the posterior border of the diaphysis and the epiphysis has been greatly increased, the whole giving the leg at this point a distinct bend forward.

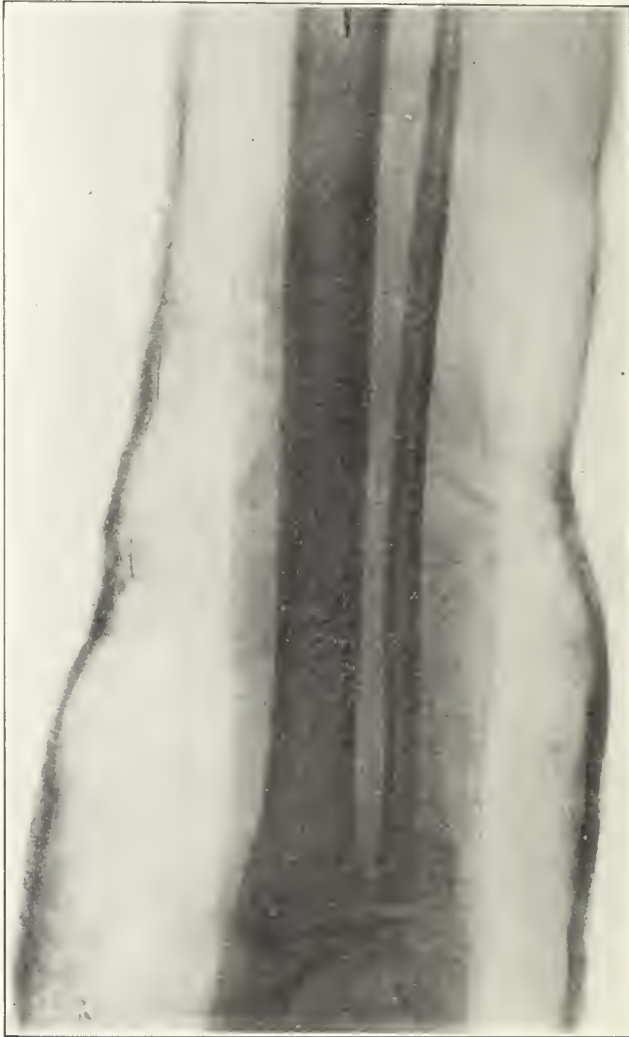


FIG. 8

On the day after these radiographs were taken we again etherized this patient, removed the cast and dressings, reopened the wound, reduced the deformity once more and nailed the tibial fragments, driving the nails from the internal side of the epiphysis upward and inward into the diaphysis so as to avoid entering the

ankle joint. The result is well shown in the radiographs (Figs. 10 and 11) which I now show you.

No attempt was made to secure the fibular fragments, for we have learned that if the alignment of the tibia is satisfactory we may disregard the fibula.



FIG. 9

I think you will agree with me that we have now not only reduced the previously existing deformity, but have succeeded so far in maintaining reduction and, even if we have avoided infection, we shall doubtless get a satisfactory anatomical and functional result.

Because of the long delay in reducing this fracture, together with the marked tendency toward a recurrence of the deformity, it is doubtful whether satisfactory reduction could have been maintained without the use of some form of direct fixation.

Note. This case subsequently pursued a normal course and, when last seen, about two months after operation, patient was walking about the ward with a slight limp, every day gaining increased motion at the affected joint under massage and passive movements. We have been unable to trace her since leaving the hospital.



FIG. 10

FIG. 11

CASE II. SUPRACONDYLOID T FRACTURE OF THE FEMUR

The next case is similar to that upon which we have just operated. It involves the knee joint.

History: L. M., a school boy, aged 10, was admitted September 13, 1913, suffering from shock and complaining of pain in the left knee and an injury to the face. He had fallen from a tree to the ground. Besides the pain in the left knee there was severe pain on opening the jaws.

On examination, no other injuries were discovered and none of the bones of the face were found to be broken. The knee and lower half of the left thigh were greatly swollen and there was a large ecchymosis on the outer aspect of the knee. Crepitus was present over the lower end of the femur. The leg was slightly flexed and any attempt at extension greatly increased the pain.

As soon as possible after admission, an X-ray examination was made with the following result: The anteroposterior view (Fig. 12) revealed a supracondyloid T fracture of the femur about two inches above the joint with the lower end of the upper fragment overlapping the outer condyle in front as far down as the epiphyseal line. This was confirmed by the lateral view (Fig. 13), which also showed that the fracture was oblique from behind for-

ward, running from a point an inch and a half above the epiphyseal line behind to the epiphyseal line in front. This view also showed that the lower end of the anterior border of the diaphysis overhung the patella and threat-



FIG. 12

ened to perforate the skin, while the lower fragment was partly flexed upon the leg, its upper end impinging upon the structures occupying the popliteal space.

Ice bags and evaporating lotions were applied and the knee, flexed at an angle of about 100 degrees, was placed upon an inclined plane.

September 19th, six days after admission, some of the more acute



FIG. 13

symptoms have subsided. Under ether anesthesia, an effort was made to reduce the deformity, the leg afterward being replaced upon the inclined plane with extension in the line of the thigh.

A subsequent X-ray examination does not show much improvement.

REMARKS BY DR. BOGART

Fractures of the extremities of the femur are among the most difficult with which we have to deal. In fractures of the upper third we have flexion and abduction of the upper fragment with shortening, the first two due to the action of the muscles attached to the trochanters. Here we must flex and abduct the thigh as well as apply extension, as extension alone will not overcome the deformity.

In fractures of the lower third besides shortening we have the lower fragment tilted backward by the powerful action of the gastrocnemius, the two heads of which are attached to the condyles just above the epiphysis. We must either flex the leg upon the thigh or divide the tendo Achillis before applying extension.

In the majority of instances of fractures of either extremity of the femur it is impossible to entirely overcome the deformity by any of the mechanical appliances at our disposal without resort to an open operation. Nevertheless, we can in most instances, by keeping in mind the natural effects of muscular action, secure fair results. There are, however, certain exceptional cases in which without an open operation it is impossible either to effect or maintain adequate reduction. To this class we believe the case before us belongs.

This patient, as the history tells you, has been anesthetized and such cautious efforts as the conditions justify made to secure reduction of the fracture by external manipulation. It has been treated in flexion on an inclined plane with extension and yet the relations of the fragments have been little changed, because it is impossible to disengage the sharp ends of the broken bone without exposing them.

If we leave the fracture unreduced the functions of the knee joint will be jeopardized and the resulting deformity will be great.

On the other, hand we hesitate to convert this so-called simple fracture into a compound one by an open operation because in doing so we expose the knee joint to the danger of infection.

How shall we approach it? The easiest access would be from the front, but here we would have to incise the anterior prolongation of the joint capsule, which extends well above the epiphyseal line. Beside, it would be an awkward position from which to disengage the backward tilted upper end of the lower fragment; and, in case it should prove necessary to apply some internal retentive apparatus, such as a nail or plate, it would be difficult to avoid one end of it entering the capsule of the joint. The posterior surface of the bone would be best suited for the application of a plate, but

we should be obliged to leave a foreign body in close proximity with the popliteal vessels. For these reasons when the bone has to be exposed at this point it has generally been done from the side. In this case we shall select the outer side and make our incision between the hamstring tendon and the external vastus. We shall have to make a long incision and carry it well down over the external condyle as otherwise we shall not be able to properly expose the ends of the bone.



FIG. 14

FIG. 15

The knee will have a double disinfection. It has been scrubbed with soap and water and disinfected with alcohol and ether and has since been protected with a sterile gauze dressing. We shall now apply the tincture of iodine. Before doing so, however, we shall place a tourniquet about the thigh as high as possible so as to limit the loss of blood.

Note. Through an incision about eight inches long extending from just above the articulation upward on the outer side of the thigh, the ends of the bone were exposed and a large amount of blood evacuated. The periosteum on the posterior surface of the bone was found to have remained attached to the lower posterior fragment and to have been stripped up for a considerable distance from the posterior surface of the upper fragment to which it still remained attached. On account of the swelling of the soft tissues and the expansion of the condyles the point of fracture was deeply seated and, although the lower end of the upper fragment was easily freed from its entanglement in the anterior muscular group, the upper end of the backward

rotated lower fragment was dislodged with great difficulty and when free maintained its position resisting all efforts to restore it to its normal relation to the upper fragment. As the application of nails or a plate was not feasible, the ragged end of the lower fragment was removed with a rongeur, and the



FIG. 16

wound closed with silkworm gut sutures after the insertion of a gauze drain. Over abundant dressings, a plaster of Paris cast extending from the foot up to and including the pelvis was applied. Strong traction on the leg was maintained during the application of the cast.

An X-ray examination four days later showed that the reduction was still unsatisfactory, chiefly because of the tilting backward of the upper end of the lower fragment. The cast, dressings and drain were therefore removed



FIG. 17

and the tendo Achilles divided, after which another cast was applied under strong traction.

Figures 14 and 15 show the result two weeks after the primary operation. Most of the shortening has been overcome and the relation of the fragments whether looked at from before backward or from side to side has been

greatly improved. Compare the lateral view with that taken before operation (Figs. 14 and 15) and note that the lower end of the anterior border of the upper fragment now no longer overhangs the patella and threatens to perforate the skin on the anterior surface of the thigh.

The subsequent course of the case was uneventful. Figures 16 and 17 seven weeks after operation, show that the entire space between the stripped up periosteum, and the posterior surface of the femur has been filled in with callous. At this time union was firm, but there was little motion at the knee.

Under daily massage with gentle exercises, motion at the knee had been partly restored when the patient left the hospital.



FIG. 18

FIG. 19

When seen and examined by Dr. Joseph Tenopyr, nine months after operation, he walked without a limp and it was impossible by inspection to detect which femur had been broken. At this time extension was complete, but flexion was still limited to about 100 degrees. Figures 18 and 19 from an X-ray examination made at the same time show the present condition. I am unable to account for the hiatus which appears in the lateral view.

THE MAKING OF AN ADEQUATE PHYSICIAN

BY E. S. GOODHUE, A.M., M.D., LL.D.

The Doctorage, Hawaii

Undoubtedly the education of a boy for his ultimate vocation should begin in the grammar school or at home.

Under present conditions this seems impossible, or at least impracticable, and the preparatory schools must go on treating boys and girls as one homogeneous mass, grading them into rigid sections, and finally turning them out fitted for anything in general, but for nothing in particular.

In a measure, this may account for the fact, everywhere recognized, even by educators themselves, that a majority, perhaps, of boys and girls who graduate from the preparatory and high schools are inadequately grounded in elementary English, have no literary judgment, and are almost devoid of an adequate sense of letters.

Upon her general knowledge, for instance, the girl fits herself for stenography and typewriting. But when she begins her real work, barring exceptional cases, it is found that she is not sufficiently educated to do her work efficiently.

In Chicago, a few years ago, I had occasion to need the services of a typewriter in the preparation of some manuscript for publication, and after trying ten girl graduates of high schools who applied, I found not one of them capable of spelling and punctuating the English they attempted to write.

In a sentence like "its best quality," one girl persistently wrote the possessive "it's," and another as constantly misspelled words like "busy," "conceit" and "grieve."

In a measure, I said, our system of education may account for such a slovenly application of acquired knowledge, but only in a measure.

Exceptional schools in our own country, and most schools in England and the British colonies, give their graduates a thorough training, not only in mathematics, but in English letters and composition. They establish a taste, and often a hunger, for reading—that curious and fascinating desire to perceive other men's perceptions; mentally to ruminate in intellectual conceptions and revelations which constitute literature. Without it there can be no true education. It underlies culture. It is the foundation of success.

Very true it is that this taste for knowledge is often inherent; that it overcomes all obstacles, and vindicates itself in the possessor around whose path lie no advantages whatever.

We have thousands of examples, and a notable one in Abraham

Lincoln, whose insatiable curiosity and hunger for knowledge could no more be subdued than human power can alter the forces of gravitation.

Yet, in those who have little of this tendency toward acquisition, the taste may be cultivated to a degree; and lack of discernment in a teacher, or the influence of a pernicious educational system, will in most cases discourage or destroy a literary susceptibility.

And while it may not be possible at the present time to emphasize individualism in the classroom, or establish personal relations between teacher and pupil in large institutions, it should be a *sine qua non* of graduation from any grammar or high school that the candidate give evidence of a thorough knowledge of the elements of an English education, which in England and Germany is pretty generally done.

This essential provided for, there would be little occasion to require of the matriculant of a medical school evidences of a long course of classical or scientific study.

As I have said before,* the best system of medical education and the most efficient staff of teachers cannot instill mind into a student devoid of it; they cannot qualify an inherently disqualified man for a particular profession or trade; they cannot even promise that a good student, who meets the technical requirements of the school, will prove to be a capable physician.

Too many other factors are essential for the successful practice of medicine and surgery, and too many disqualifications not necessarily educational are sufficiently disastrous in themselves to make it possible for any body of men to institute a literary test that shall indicate a man's vocational adequacy.

But the medical colleges may not only in theory and advertisement require of their matriculants a sound preliminary education, they should take into consideration his character, history and adaptability; know positively that he has sufficient mind for the work he desires to undertake; that he has measurably high aims; that he is an earnest lover of scientific truth, and that he possesses a fully equipped literary armamentarium, without which his mind and high aims will not avail him much.

If the ordinary college faculty cannot do this work, let there be established an advisory board or committee of discerning men, whose business it shall be to determine, as far as such things can be determined in the early student, whether he is fitted to receive medical education, or what he is fitted to undertake.

This committee of learned, experienced and sympathetic men

*"Education and Culture in the Medical Man," E. S. Goodhue, M.D. 1909.

could be national, and appointed by the President, to serve without pay or political preference.

The advice or criticism of such a board would be valuable; it would help the successful candidate.

For the unsuccessful one it would be a godsend, directing him toward work for which his intellectual and educational qualifications fitted him.

Such an institution would weed out many poor doctors; it would simplify the present unwieldy and inadequate system of State examinations; facilitate the work of medical colleges, and pass over for success in law, theology, literature, mechanics or agriculture, as the case might be, a man who would have been at best a second-rate doctor.

Says Dr. Adami, in an address before the Medical Society of the State of New York:*

"We university professors have presenting themselves before us what I suppose are the pick of the products of the public school system. What do we find? It is a painful admission, but the majority when they reach us are fair poll parrots; they can pump out what has been pumped in; but it is distinctly the minority, and, let me say, a small one at that, who can utilize their frontal lobes and put two and two together. . . . I may be wrong, but it seems to me that the youth should be trained to think before going to medical college. . . . I feel that the secondary education is seriously defective. . . . That the system of examination is wrong which makes entrance to medicine depend purely upon the capacity for the recollection of unrelated statements, which does not by an essay, or, still better, by an oral examination, test the intelligence as distinct from the memorizing power of the candidate."

Every normal boy is better qualified inherently for some one work in life than he is for any other. There is developed very early a certain adaptability, a *penchant* for particular studies and special lines of action.

One boy likes and easily acquires mathematics, another letters, another mechanics or agriculture, and so on.

And these irrepressible favorites are psychological straws, which should indicate much more than they do to our educators.

Because of this lack of discernment or indifference, "there is too much instruction, too little education, with the resultant danger of the production of a race that is thoughtless, characterless"—and inefficient.

While the reputable medical schools of the country have raised

*"Certain Elementary Concepts in Education," J. G. Adami, M.D. 1913.

their requirements for admission, and lengthened their courses of study, even beyond what many of us consider wise or necessary, they still carelessly accept diplomas for which the owner furnishes no literary equivalent whatever, and graduate men whose general attainments and culture are not sufficient to admit them into good society.

Medical schools in small cities far removed from the the centers of population are to be held accountable for some of our medical inefficients, no doubt.

Two or three good schools, placed where there would be abundant clinical material, would prove adequate training establishments for adequate students.

While many of the smaller schools furnish admirable didactic instruction, in a clinical way, they fall behind their needs.

True enough, the best schools graduate poor doctors, despite their advantages, and the poor schools give us capable men; but this is due to the very exceptional men in both cases, and cannot be taken into general account.

An advisory board would, at least, eliminate the most unfit, whether in temperament, character, education or adaptability, and keep mere business drummers out of the profession.

Were the educational requirements stated in the curricula of medical schools less exacting, and the practical demands made comprehensive and uniform, we should not find ourselves burdened with the machinery of State boards of examiners, whose treatment of the candidate is not always and everywhere just and discriminating.

Many State boards are partial to the graduates of their own State schools, passing applicants whose unliterary attainments are notably in evidence.

Let me cite a concrete example which came under my notice a few months ago, emphasizing the truth of what I have said. A young man of cultured antecedents, intelligent, prepossessing in appearance, with no bad habits, so far as I know, and industrious, entered the medical department of the University of Southern California, where he took the usual course, graduating finally after a year's delay caused by some differences he had with one of his instructors.

Whether this was due to an "uncompensated conditioning," a failure to pass in certain studies, or to mere headiness on the student's part, remains unexplained.

His preliminary education was acquired in a desultory way, in western district schools, a short course at normal school, and an associate in arts' degree from a small college.

On receiving his medical diploma, the young man completed his internship at a hospital and secured a license to practice from the California Board of Medical Examiners as a regular physician.

Although I had not seen the young man since his childhood, in friendliness and on the recommendation of acquaintances, I made an opening for him in Hawaii, standing sponsor, as it were, for his qualifications to the Territorial Board of Examiners.

As with most young physicians who start in practice, he did not lack confidence in his ability to cope with any phase of his work, was ready with technical expressions, and facile in making what he knew cover a broad surface.

Although confident that he had passed an "unusually good examination, especially in surgery," no report came from the examiners in Honolulu. These examiners, I may say, were unusually capable and discriminating.

As I needed the young man here, and his position was awaiting him, I wrote to the Board expressing my surprise at the delay in sending his credentials. Finally they came.

They had been held back simply because the papers handed in were badly written, badly spelled, and in execrable literary form throughout. Taken as a composition, they would have shamed a country schoolboy.

Yet here was a graduate of several schools, a man who had served on the staff of a city hospital, and passed the examination of a board regarded as tolerably rigid in its exactions! I was humiliated, of course, but that didn't help matters any, especially as one of the examiners particularly felt that such a poorly equipped man would not prove an adequate practitioner in the large sense of the word.

On closer acquaintance, I discovered many reasons for the lack of preliminary qualification: overconfidence, obstinacy, and a narrow and mercenary view of professional work.

Technically he was a student of medicine, but he came to his reading with no comprehensive knowledge, the aura which encircles and brightens a page, and his perusal of textbooks tended to narrow his outlook over a widening science.

There had been no early reading of the great books of science, no mental passages into evolution and the wonderful accounts of our world development. History in the larger sense, religion, subjects which have always interested medical men, were uninteresting to him. He had no time for anything but medicine, he said.

His contempt for literary efficiency in the medical man was evident. He didn't think much of the medical articles and books by physicians he knew. Such writers were theoretical, and didn't know

much about practical medicine. He possessed the incredulity of ignorance, that strange, unknowing knowingness which marks the ignoramus, and makes a man deny the well demonstrated conclusions of scientific experts.

Knowing their utter inability to express in clear language what they do know, they are suspicious of the methods of others who can give a logical account of the practical observations they have made.

Now, while this young man by a series of experiences may learn to be a tolerably good physician, he can never be an adequate doctor. That is, he will never be able to use all his talents. As a surgeon, he has proved to be a failure; and, like a number of us, probably will be wise enough to confine himself to other branches of medicine.

His reading, confined to medical literature, light fiction and a few magazines, limits his breadth. He is disdainful of consultation, and so far has bent every energy to the acquisition of money. While a good physician should receive good compensation for his services, his spirit should be altruistic and unselfish.

Surely, "if we desire not so much an upper seat in the synagogue as a serene mind and self respect as the greatest worldly possession, let us not trouble about money making."

Dr. Adami has quoted Kipling:

"Money dominates everybody except the man who does not want money. You meet that man on your farm, in your village, in your legislature. Be sure that, whenever and wherever you meet him, as soon as it comes to a direct issue between you, his little finger will be thicker than your loin. You will go in fear of him; he will not go in fear of you. You will do what he wants; he will not do what you want. You will find that you have no weapon in your armory by which you can attack him; no argument with which you can appeal to him. . . . If your wealth is necessary to you for purposes not your own, use your left hand to acquire it, but keep your right hand for your proper work in life."

Although this young man, who is only one example of a misplaced merchant or trader, made an unusually large amount of money in the first year of his work here, and so expressed himself to intimate friends, his constant talk was regarding fees, with reiterated complaints against those with whom he had had business relations: "a morbid soreness as to money matters" regarding his patients, myself, the druggists, the board of health, his own brother.

Now, of course, no college or system or board or anything whatever could have given this young man the mind of Lincoln, or even, perhaps, the essential intellectual quality which would have kept him

from writing a slovenly, immature hand, misspelling the words of his language, and presenting his acquired knowledge of medical facts in an obscure, unforbidding form; but the institution to which he came for credentials could and should have kept him from entering a profession which calls for thorough preliminary education, culture, extensive and general reading, high aims, unselfish earnestness and an insatiable hunger for those things which minister to the nobler needs of men.

PUERICULTURE AND EUGENICS IN ANCIENT GREECE

BY DR. M. MOISSIDES

*Editor in Chief of the Greek Medical Journal "Hippocrates,"
Constantinople*

(Translated for the AMERICAN PRACTITIONER by A. Rose, M.D.)

II

PUERICULTURE DURING PREGNANCY

Puericulture during pregnancy concerns in general the whole question of hygiene of the pregnant woman.

The importance of this part of puericulture was recognized and masterially demonstrated by the ancient Greeks.

Hippocrates writes on this subject: "It requires a great deal of precaution and knowledge to lead the fœtus to term, to maintain it in the womb and to bring it to the world during delivery."

Galen, confirming the opinion of the master, adds: "Numerous errors of pregnant women like irregular and libertine life, sexual excesses, grand psychic passions, imprudent leaps, etc., constitute a real danger of abortion."

Before entering into details of the hygiene of pregnancy of the ancients we will briefly show what was the position of the pregnant woman in ancient society and in relation to legislation.

The object of the marriage was, as we have seen in the first part of our study, procreation; the Greek society, by law and custom, took every precaution that the pregnant woman should successfully bring her child to term.

A law, originating with the Egyptians, established in Athens by Solon, forbade the execution of pregnant women, under death sentence, before delivery.

In Athens a pregnant woman who had lost her husband was under the protection of one of the magistrates of the city, and her

house was considered sacred to such an extent that a criminal taking refuge there was saved from arrest.

In Sparta, by a law of Lycurgus, a woman who had died during childbirth was honored by an inscription over her grave, an inscription which was only accorded those who had died for their country.

The Greek poet Phocylides (540 B.C.) wrote in this sense the celebrated line:

Μηδέ τις ἀλόχῳ ἐγκυμονι χεῖρ·ι βάλετω

(No one shall place his hand upon a pregnant woman.)

All these quotations, of which a countless number could be given, show in indisputable ways with how much respect a pregnant woman was regarded in Greek society.

The general hygiene of the pregnant woman concerning régime, physical exercises, garments, baths, etc., were seriously considered by physicians of ancient times.

In all probability there existed a law in Sparta regulating the diet of the pregnant woman.

Plato in his "laws" considers such a régime ridiculous.

Aristotle, to the contrary, will have it that legislation impose a special régime on pregnant women. "For," says he, "the children do not less resent impressions from the mother who carries them than are the fruits sensitive to the soil from which they are nourished.

Hippocrates and Soranus speak of the diet of pregnant women which should be substantial and tonic.

In Oribarus (355 A.D.) we find a whole chapter taken from Galen on the diet of pregnant women.

The benefits of bodily exercises and walks during pregnancy were recognized by the ancients.

Plato, and after him Aristotle, recommended pregnant women to walk in the open air. Galen enters into specific details in this regard; he recommends for the purpose of creating appetite, exercise and even long travels, but under the condition that the woman should accustom herself to them gradually. He thinks traveling advisable as long as it does not tire them out; those who are easily fatigued cannot stand, without inconvenience, sudden movements. In regard to exercise the pregnant woman should adhere to her accustomed occupation and take easy and short walks.

During pregnancy the garments should answer two conditions, permit the free development of the womb and prevent taking cold. These two conditions have been masterly indicated by Soranus of Ephesus in his excellent works on Diseases of Women. He

insists on the necessity of giving more freedom than is given by the garments usually worn to cover the breast, in order that all parts of the mamma may develop without hindrance; he recommends also support of the uterus when the tumefaction of the abdomen is considerable and the uterus heavy and pendant.

This remarkable passage informs us that a belt to be worn during pregnancy was known and used by the ancient Greeks.

The benefits of hydrotherapy for pregnant women was recognized. In the beginning of pregnancy, says Galen, the pregnant woman instead of bathing prefers inunction with oil followed by mild friction: "it would, however, be useful to foment themselves by aid of the baths, for this produces sleep, relieves fatigue and modifies the violent movements of the fœtus."

Soranus prefers the lukewarm to the cold bath, the former being especially useful toward the end of pregnancy by relaxing the tissues, as also do the sitz baths with linseed or a decoction of mallows.

The question of conjugal relations during pregnancy has been treated in very different ways by the several authors of ancient times.

In Hippocrates we find the following precept: "A pregnant woman who does not submit to coitus will have an easier delivery."

Plato was of the same opinion. Aristotle to the contrary, however, after stating that no animal indulges in coitus during pregnancy excepting man and rabbits, gives the following advice: "Women who entertain conjugal relations during pregnancy have quicker delivery."

Soranus coincides with the opinion of the master of Cos, writing: "Sexual indulgence is harmful and even dangerous during the whole time of pregnancy; on account of the rapid movements of the uterus, abstinence is advised especially during the last months for fear of injury to the chorion containing the liquid which is so useful at delivery.

Moschion (110 A.D.), who has made extracts from and gives translations from Soranus, writes: "May pregnant woman have coitus?" No, except it is possible that they do not become excited and the uterus have to suffer agitation. They should keep themselves quiet and honest, in order to retain the fruit of their conception; they should at least abstain during the last days, when the movement caused by coitus would have the effect of tearing the chorion, thereby letting out the liquid prepared by nature to facilitate the issue of the child.

Galen (163 A.D.) is less severe. According to him the pregnant woman need not abstain entirely from sexual intercourse.

but should not abuse it, for after total abstinence during pregnancy the confinement will be more difficult, and women who indulge constantly will have feeble children. The physician of Pergamum advises prudence, especially during the eighth month, the most dangerous epoch for pregnant women.

The effect of overexertion during pregnancy and the weight of the fœtus has not been exactly described by the ancient authors.

Hippocrates disapproves of great fatigue, as it may cause premature birth. Aristotle and Galen do not share the counsel of the master. Both condemn sedentary life, but come to questionable extremes, which do not correspond with facts established concerning puericulture.

Aristotle writes: "Women who lead a laborious life show less their pregnancy, while their confinement is less onerous. This is observed in all countries where women work and become fatigued.

Galen advises pregnant women to eat and to fatigue themselves, for says he, where there is need of more abundant nourishment, there must also be more exercise because constipation is eminently pernicious in pregnant women.

Moral and psychic hygiene of the pregnant woman, the importance of which has been recognized by modern students of puericulture, did not escape the penetrating and clear seeing eyes of the Greek writers.

All of them, and especially Hippocrates, Galen and Soranus, have insisted on this delicate point of advice to the pregnant woman: to avoid contrarieties, painful or laborious conversations, disagreeable news and emotions of all kind.

A custom, according to which the Ancient Greeks forbade pregnant women to visit, follow and see the drama in the theater should be accepted without contradiction as one of the natural consequences of these opinions.

In closing this chapter we will briefly refer to an interesting physiological question:

Can the imagination of the Mother make Impression on the Fœtus?

The opinion of the ancients concerning this question is absolutely affirmative.

The master of Cos formally declares that the impressions of the mother become fashioned on the fœtus. He quotes several examples to confirm this opinion. Empedocles (430 B.C.), Parmenides (450 B.C.), and the Stoics believed that the children formed themselves during conception according to the impressions of the mother. Empedocles reports the fact that women having been infatuated

with a painting or a statue had given birth to children who bore resemblance to the painting or statue.

Aristotle in his history of animals confirms this belief, writing: "Children shape themselves according to the dispositions of the parents during the act of procreation," and further on he declares that "the feeble produce feeble ones."

Galen thought likewise, as we notice from his writings that this celebrated physician gave to some of his clients, who demanded his opinion on the means of securing beauty of their descendants. Here are some notable examples: "A Roman general, of small stature, homely and deaf, had through his wife a child of the figure and conformation of *Æsop*. This general, surprised at the sight of the little monster, and fearing that this bodily infirmity might be transmitted to further descendants, demanded the counsel of this celebrated physician of Pergamus. Galen advised him to place around the conjugal bed three statues representing love, one towards the interior part of the bed, and others at the sides.

"The general having strictly followed the prescription of the master, had the good fortune to become the father of a child, the beauty of which surpassed all his expectations."

Galen quotes further the case of a homely father who desired a handsome child. Following the advice given him he secured a painting representing a handsome child. During coitus his wife had to look at this painting. And the woman gave birth to a child which resembled the one of the painting.

History tells us also that Denis, the tyrant of Syracuse, placed before his conjugal bed the picture of the handsome Jason that he might have handsome children.

The idea of the ancient Greek physicians and philosophers on the influence of the imagination of the mother on the morals, physique and intellectual predispositions of the children was so firmly established that the famous Greek callipædy was for most part based on it.

It was put in practice by placing beautiful paintings and handsome statues before the eyes of the woman soon to become a mother.

In Sparta writes Barres: "As soon as a woman becomes pregnant, she is surrounded by pictures of *Jacinth* and *Narcissus*, of *Castor* and *Polydeukis*, in order that she may bring forth a child beautiful and robust like them."

The Greek artists represented almost always the beautiful, the ideal, avoiding the ugly although natural. They even had laws like

those of Thebes which forbade under severe penalty to represent homely persons or grotesque subjects.

The object of this artistic tendency existed before callipædy in a nation in which beauty always received the most renowned triumphs.

THE PREVENTION OF ARTERIOSCLEROSIS*

BY LOUIS FOUGERAS BISHOP, A.M., M.D.

New York

Nothing can help race betterment more than the prolongation of efficiency and life of men and women over middle age who, having satisfied the personal ambition of youth, can devote themselves to the public good.

Never in the history of the world has the study of arteriosclerosis assumed so great importance as at the present time because never before has this disease played so important a part in insidiously undermining efficiency and shortening the lives of the most valuable workers.

I am not in a position to make a comparative survey of the frequency of this disease, because, with heart troubles, it covers the entire field of my practice, but insurance men tell me that the mortality from the group of disorders that is covered by this name claims a number of victims that is more than double what it was thirty years ago. In 1910, one hundred thousand persons died of circulatory disease in this country, and I will venture the statement that there is not one of my hearers that has not lost a friend around sixty years of age during the past year from heart trouble, due, primarily, to arteriosclerosis. While this has been recognized, but little has been done in the way of prevention.

There are several things that need to be done: We need a clear definition of the disease. We need to become dissatisfied with the enumeration of indefinite causes, and we need an educated public opinion that will shield the earnest worker in the field of hygiene and dietetics from the thoughtlessly applied epithets of those who, seeking a refuge behind a bad prognosis, have no efficient regimen of their own to suggest.

As to definition, arteriosclerosis is the most improperly named of all diseases, and yet no one has suggested a better designation up to the present time. While it receives its name from the blood

*Paper read before the National Conference for Race Betterment, Battle Creek, Mich., January 8, 9 and 10, 1914.

vessels, which are often conspicuously involved, it is in fact a disease of the whole body, characterized by irritation, and finally, destruction of cells in all parts of the body, the destroyed cells being replaced, according to the law of pathology, by connective tissue.

For many years there was discussion as to whether this disease began in the blood vessels, in the heart or in the kidneys, and the coincident involvement of the lungs, liver and digestive organs was noted. According to this point of view, it was called "heart disease," "Bright's disease" and "autointoxication."

In this instance every one was right, and every one was wrong, for all the organs mentioned were indeed involved, and the disease might have been named as well for one as the other.

That it is not primarily disease of the arteries is shown with the now familiar fact, that the disease may run its course with only slight changes in the blood vessels; or, the changes in the blood vessels may be very marked and the disease itself have but little effect on the life of the sufferer.

The arteries, being of universal distribution and bearing much of the functional stress of the disease, may be granted the honor of giving it a name, and, from henceforth, the disease will be known as "arteriosclerosis" until such time as its fundamental nature is thoroughly understood and the underlying error of metabolism clearly designated.

It would seem that the disease originates somewhat in this manner: A person pursuing the even tenor of his way, being fed and nourished on the usual mixed diet and resisting successfully the usual slight accidental infections, is some day overtaken by some event that alters the chemical functions of his cells. This event may be a great nervous strain; it may be an infectious disease or surgical infection; or, it may be some form of acute food poisoning.

From that time on, the cells of this person's body are sensitive to particular proteins that reach these cells from the alimentary tract or from the bodies of bacteria originating in some focus of infection. So long as the supply of the offending protein continues, the irritation of the cells is kept up, leading to destruction and progressive sclerosis. Impairment of function follows and a greater and greater demand upon the circulatory organs, and eventually, the development of the picture of chronic Bright's disease, heart disease, apoplexy or presenility.

If, however, at any time it is possible to remove from the body the offending protein, the irritation ceases, compensation is developed, and the man is capable of being well.

The prevention of arteriosclerosis on these premises must depend, primarily, upon the avoidance of sensitizing events, such as periods of great stress and worry, infections, acute food poisoning, and the neglect of foci of infection. Secondly, upon the study of food relations of individuals from time to time, and the institution of a strict regimen when, on account of changes in blood pressure, pain in the region of the heart on exertion, or because of nervous depression and loss of efficiency, arteriosclerosis is suspected.

The great fact that must always be faced by the student of arteriosclerosis is, that it is a disease *without* symptoms. In actual practice, sufferers from this condition seldom come under treatment until it has lasted for from three to fifteen years, and, even then, they usually come because a life insurance man who has examined them or a physician who has treated them for some other disease has discovered arteriosclerosis.

Arteriosclerosis is seldom the result of a single cause though most investigations reveal a sensitizing event. The effect of this sensitizing event might have been averted, had not the individual previously been the victim of too great ambition, of too long hours of labor, under too great strain, of the neglect of outdoor exercise, or the overingestion of food, with perhaps the immoderate use of alcohol and tobacco.

Another element in the prevention of arteriosclerosis is the education of all persons in the habit of taking "cures," if this name may be used for periods of time set apart for the putting of the body in the best possible order.

We should adopt the motto, "Attend to the health while healthy," and encourage the European custom of the combination of a vacation and a visit to a cure resort.

We must learn the secret of right living, and avoid apoplexy, heart failure, paralysis and sundry diseases of the liver and kidneys that follow in the train of errors of diet and work. Race betterment must always be a matter of the improvement of the individual. Arteriosclerosis is not your neighbor's enemy; it is your enemy. It is the greatest though most insidious danger to a group such as is gathered here to consider the welfare of the race in general. I trust that no one of you will neglect to study the solution of this problem of health through right living that are offered by this magnificent institution, the Battle Creek Sanatarium, whose guests we are.

I thank you for the privilege of addressing you.

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JOHN W. WAINWRIGHT, M.D., EDITOR

Address all communications to
JOHN W. WAINWRIGHT, M.D.
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EDITORIALS

APROPOS OF THE MEDICAL MIND

The editorial upon The Medical Mind, in the issue of THE PRACTITIONER for July, raises a question of great importance to the Medical Profession. You have clearly pointed out that the training afforded by the study of Medicine as an undergraduate, and the further training of Medical Men as Practitioners, has developed, or brought about a definite type of mind which is a deviation from that which characterizes any other body of men, professional or otherwise. Your editorial would suggest that this unquestionable fact is largely due to the study of minutiae arising out of training in the Laboratory Departments of Medicine. As, however, the Medical Mind has been typical of the Profession, and has set it apart from other groups of men, for ages—as is proven by the works of all satirists, lampoonists, and caricaturists of literature—it is self evident that the effect of modern laboratory studies, and, more especially, of studies in which the microscope is used, has merely been an additional factor in producing the peculiarities of the Medical Mind of the present day.

The peculiarities of the Medical Mind is a subject which has interested me for many years; as it so happened that, as early as the first year of my entrance into the Profession—now thirty years ago—I became First Assistant in the Philadelphia Lying-in

Charity, and the Chief of its Gynecological Clinic, and, in this way, became a teacher of both undergraduate and post-graduate students, and also occupied the position of Consultant to the students when difficulties—either real, or, more usually, imaginary—arose in their attendance upon the Outdoor labor cases, assigned to them by that Institution as a part of their Special Courses in Obstetrics and Diseases of Women. By this accidental circumstance my experience as a Consultant is almost coequal with my Medical life, and in this way I have had ample opportunities for the observation and the analysis of the Medical Mind. As my experience grew, the trait, which has most impressed me as characterizing a very large percentage of Doctors, is their lack of reasoning power, and also their very constant tendency to confuse effects with causes and utterly to disregard causes, themselves, as factors in the production of disease and in their diagnoses. It is true that all of the wise men, of both Ancient and Modern Times, have pointed out that the ability to reason accurately from accurately ascertained premises is limited to a very small minority of the human family; which, of course, includes Doctors. It is a fallacy, entertained by many, that this judgment of the Sages does not apply to educated men, but, nevertheless, a fallacy remains a fallacy; and no one, having large opportunities for observation, and analytical ability, can fail to be impressed with the fact that the reasoning capacity of educated people does not differ greatly from that of the mass of mankind, so far as relative percentages are concerned. Indeed, there has existed a body of critics who have pointed out that the more education one, who has not inherited the capacity to reason accurately, shall receive, the more manifest becomes his deficiency as a logician. Certainly I would not care to undertake the very difficult task of refuting the claims of these critics. Hence, it is not an unreasonable assumption that, although the Profession of Medicine is one of the learned professions, its members do not, thereby, escape from the just criticism of those analysts, as to the effect of education upon the mental processes of the cultured, already alluded to. These general observations, with reference to the Profession, apply equally to others, whether or not they be professional men.

The question still remains as to the manner in which the educational and the practical training and experience of Doctors have caused their mental processes to deviate from that of the general average. Until comparatively recent times Medicine has been almost wholly empirical or unscientific, and, therefore, the personal authority of Medical leaders has been the only guide for the individual practitioner of the average type; that is, one without the capacity for forming personal judgments upon personally ascertained facts or premises. There can be little doubt that this status, or lack of status, of Medicine, as a branch of scientific learning, has influenced the minds of Doctors in two directions: As they have been obliged to base their beliefs upon authority, this has tended to make them relatively credulous; and is not credulity—that is, an undue readiness to accept, or, at least, give a too attentive ear to, every passing “wind of doctrine”—a marked characteristic of Medical Men? On the other hand, as authority has succeeded authority, and as each, in turn, has taught doctrines inconsistent with, or in opposition to, those of their predecessor, or predecessors, it would naturally come about that the opinions, or the judgments, of the Profession could not be firmly based, and that, thus, the Profession, as a whole, has tended to look upon the assumed Truths of Medicine as being relative; which has still further caused them either to lend a too attentive ear to the outgivings of a new “prophet in Israel,” or, on the other hand, has tended to cause them to become nihilists, in so far as any basis of truth is concerned with reference to the foundations of Medicine; although practical considerations may have induced them not to apply, in practice, their nihilistic beliefs either as to the Principles of Medicine, or the Practice of Therapeutics. While these considerations, apparently, have a sound basis in Medical History, it is nevertheless true that from the days of Hippocrates until the present time there has been gradually evolved a sound body of clinical observations, which, if not truly scientific, in the sense of being based upon thoroughly understood principles, has been, notwithstanding, based upon accurate observations, which, in the course of the Ages, have become digested, and out of which has grown the clinical wisdom of the great Practitioners of His-

tory, as well as of those of the present day, and which constitutes the Art of the Practitioner, as distinguished from the Science of Medicine.

It should be emphasized that the Art of Medicine is a distinct entity, related to the Science of Medicine, but distinct from that Science, in the sense that the largest factor in the Art of Medicine is the personality of the Doctor, including his personal judgment, tact and motives. Until modern science had paved the way for the development of the newest and the most valuable department of Medicine, which is the prevention of disease, through Hygiene and through State Medicine, whatever of good repute and of esteem and affection, on the part of the public, which the Profession of Medicine has enjoyed, has been due, almost exclusively, to Medicine as an Art, as distinguished from Medicine as a Science. The wiser, more forceful, and more altruistic members of the Profession as Practitioners, in all the ages, have laid the foundations for whatever of good reputation the Profession enjoys in the estimation of the more thoughtful portion of the lay public: Whereas, it has been the remainder of the Profession, and its larger part, whose undue pursuit of self interest has marked their conduct in their relations to the public, both sick and well—whose undue assumption of importance, without proper foundation in fact—whose deceit of the public, after the manner of the charlatan, and whose relative lack of education and culture, have not only invited, but also have brought down upon the heads of all Doctors, the outgivings of the satirists, lampoonists, and caricaturists of ancient times, of the middle ages, and of the present day.

To return to the main subject, the Medical Mind, and, more especially, the Medical Mind of the present day, your editorial undoubtedly points out a very pregnant cause of the still further deviation of the Medical Mind of the modern Doctor, as compared with his predecessor, and from the characteristics of the minds of men in other professions. With the rise of modern biology, and more especially when the School of Virchow began to dominate the teaching bodies of Doctors, and when the maxim was enunciated by Virchow that, "what we need is facts, more facts, and not theories; that we already have too many theories, and should de-

vote our efforts exclusively to the accumulation of facts," the Medical Mind became markedly deviated, in that it ceased to reason, relatively speaking, and devoted itself to the observation of phenomena, and the recording of the same. While such a habit is dependent upon the intellect for its operations, it utilizes only the less evolved or simpler portions of the human intellect, which correspond with animalistic intelligence, such as possessed by the peacock, the flea, and the horse—universally regarded as one of the most stupid of animals—but which animals are quite capable of observing phenomena, and of remembering them. The habitual use of the microscope, whereby the bodily eye looks into the large end of the microscope and out through its smaller end, inevitably tends to contract the mental field of vision, or to render such workers narrow minded, being exactly the reverse of the effect which the use of the telescope has upon the minds of astronomers. The same is relatively true of the constant consideration of minutiae or detailed facts, when these are considered merely as facts, or as separate entities, and not considered in due relation to the principle or the theory which governs them—the process proper to thinking or reasoning minds.

As the School of Virchow, represented in America more especially by the workers in Pathology and Medicine in the Johns Hopkins University, came, in the course of time, to dominate the Profession, not only did the Profession, more especially in America, almost cease to think, as a general statement, but also, and worse, they have tended to forget, or else have largely forgotten, that body of observations, from which the Art of Medicine has developed, and also certain sound principles evolved from these observations, irrespective of, and prior to, the rise of modern Biological Medicine, with dire consequences both to the Profession, and to the public. When I was a student of Medicine, which, fortunately for myself, was prior to the era of the Laboratory as the dominant, and, indeed, the controlling power in Medical teaching and, so-called, thought, Medical students were taught that disease is the reaction of a man or woman, constitutionally speaking, to the pathogenic agency which has attacked him or her, and is producing the disease, which name signifies the morbid functions

of the body, in whole or in part, as a consequence of its reaction to the pathogenic agency. In other words, the constitution, and its nature, were emphasized, and it was also emphasized that the nature of the reaction or the so-called disease depended not only upon the nature of the pathogenic agency, but also, and much more, on the nature of the constitution which is reacting. Richard McSherry, the Professor of Medicine, under whom I sat, clearly pointed out that there are three types of reactions or specific types of disease, called, sthenic, asthenic, and nervous or irritative—as these terms are applied, more especially, to febrile reactions in individuals. It is a most interesting fact that the clinical observers of past generations had accurately worked it out that there are three types of constitutions: which types are evolutes, and hereditary and environmental devolutes.

Because the Medical Mind of the present generation has been so taken up with morbid processes, viewed from their morphological aspect, as objectively studied through the microscope, and as the facts—which have been heaped up almost *ad infinitum* by the methods in use during the past forty years—have accumulated to such an extent that no human mind is capable of remembering them, or of utilizing them as separate entities, it has come about, as mentioned above, that this mass of details has crowded out of the Medical Mind of the present day the sound teachings of the Fathers of Medicine, and has had the effect of both confusing their minds, and of giving them “mental indigestion,” leading to the relative cessation of thinking in the Profession of the present day. This state of facts has been well stated by Adami in his Introduction to his Principles of Pathology, and is a condition of mind best illuminated by a reference to the well known maxim of Confucius that, “Undigested knowledge leads to confusion.” Surely, the Medical Mind of the present day is largely a confused, and an unthinking mind—merely an observing mind.

The necessities of the practical life of the Medical Profession, in addition to, and independent of, the maleficent results of the methods employed by the Laboratory School of teachers during the past thirty years, would seem to have had an injurious effect upon the Medical Mind. Practitioners of Medicine occupy an

executive position. They are confronted with a problem which must either be solved, or, at least an attempt be made for its solution, and this solution, or attempted solution must be followed by instant action in order to meet the supposed necessities of the situation. As the ultimate facts of the particular case very frequently, and indeed not uncommonly, cannot be ascertained accurately, it follows that conclusions formed, or diagnoses made, under such circumstances, in the world of mind constitute reasoning without premises, from partial premises, or from partially correct and partially incorrect premises: all of which alleged methods of reasoning are not reasoning—or, in other words, are attempts to employ the reasoning faculties contrary to the laws of mind. Such mental processes properly constitute speculation, and at the most, should lead only to tentative conclusions, but not to judgments. At first, apparently at least, in part from necessity, and later from habit, the large proportion of the Medical Profession comes to attempt to reason and to form judgments after one, or more of these erroneous methods. It would seem impossible that the minds of Doctors can escape injury by such false procedures, and that the soundness of the judgment of the Profession shall fail to be influenced for the worse, as a consequence of the conditions under which its members work.

While the state of facts has made it necessary to admit the shortcomings of the Medical Mind, as compared with the ideal, and also has induced an allusion to the effect which "practical considerations" have had, and have upon the conduct of at least a portion of the Medical Profession—who, thus, admittedly, are not purely unselfish—still it remains a fact—notwithstanding all that can truthfully be alleged against the Profession, both as to their mental status, and as to their relative selfishness—that, as a body of men, they are the most unselfish profession that exists. There is no other profession that does anything except for hire; whereas, it is well known, that a very considerable proportion of the work of all Doctors is performed not only without hire, but without the possibility of receiving any pecuniary reward, directly or indirectly: and moreover, in order that this fact may become the more apparent, it should be stated that Doctors of Medicine are

the only body of men, the aim of whose professional work is self immolating. It is to Doctors of Medicine, fundamentally speaking, that the increase in the longevity of the race is due, through the publication of their discoveries in Medicine, as applied in Hygiene, and in Preventative or State Medicine, for the protection of the general public against the incidence of disease.

CHARLES P. NOBLE, M.D.

CHESTNUT-EUGENICS

Definition: Chestnut, a saying which has become stale and flat. Eugenics, the science which relates to improvement of race. Chestnut-Eugenics, the retrogression of twentyeight centuries which brings the science up to date. The various writings of today possess but two faults: First, they are not up to date. Second, they are not far enough behind the age. There was a system, once upon a time, generally associated with the name of Lysurgus, and in force (say) about three thousand years ago. It found a nation in a chaotic condition; it made Sparta dominant and preserved that predominant character by a method far more effective than any eugenic, but non-Spartan, suggestions that have been given to the world since that day. It made a race of men who were at once soldiers, athletes, stoics, musicians and dancers. Physically unfit children were eliminated at birth, but the survivors knew not those modern paralyzers of efficiency, fear or worry, or their pathologies. The environment provided was such that the question, "What shall we eat or drink, or wherewithal shall we be clothed?" never arose. Food, raiment, exercise, fresh air, etc., were prescribed by law to all alike. Prowling around in the dark was encouraged as was little speaking and much saying. If a Helot servant should attempt to tell the usual ghost story to a child, then that child, instead of being frightened, would simply say, "You do well to fear the dark, for when I am big enough to receive my dagger I shall kill some of your people by night." The children lived for the state and under the direct supervision of a senate of absolute power. They never came in contact with the dread instilled by the Bug-a-boo and other tales emanating from the ignorant superstitions of African, Scandinavian or Hibernian nurses. When disobedient, they were

thrashed, whereas our children are commonly told to "Be good, or or the Black Man will get them." One imaginative nurse said to a little child, "If you don't shut up, Raw-head and Bloody-bones will come and eat you." A similar remark made to a Spartan child would have caused him to run to his mates to spread the good news, to plan that Bloody-bones must be sought for, captured and taken to the Elders and to hope that he might receive a laurel leaf or two—perhaps—but laurel leaves were not given for trifles.

Financial worry was unknown, because the Spartan laws destroyed wealth. It was deemed absurd to proclaim and declare that children are free and equal under the law if complete slavery was ensured by debt, by monetary stringency and by factory or shop employment. Affluence was a pest, and poverty a curse; therefore, the Spartan children had neither. Hesiod said, "With us wretched mortals, money is life"; but this monetary system of eugenics the Spartan environment absolutely negated and disproved. Money had little or nothing to do with the Spartan child, either in his development or happiness. It was to him simply a nuisance, because, being made of iron, it was too heavy to carry around. If strangers reproached him for having no money, and desiring none, his simple excuse was, "But the Spartans are very handsome." The idea being that no one could have the care which wealth brings and remain handsome. If a Spartan child were told any alarming tale, he sneeringly replied, "Every stone hides a scorpion in your country."

One proverb about wealth, "Don't eat your own heart," rather favors the idea that the pursuit of wealth, even in those early times, entailed arteriosclerosis and cardiac damage, even as it does now. Can the Eugenic writers of today suggest any better environment than an out of door life, with every detail regulated by law, supervised by men past sixty years of age, who had spent their whole lives in learning, experiencing and inculcating the laws of fresh air, exercise and diet?

In the matter of heredity the Spartan went beyond the possible, from our point of view. If a man saw a young man of perfect physique and showing all the good points of the human stock, then he could lawfully breed himself a child from that young man and

his own wife. When the child was born it was allowed to live or die, as it was fit or unfit. The elimination and selection of children, together with the losses of life in war, kept the numbers of the Spartans very small. Aristotle and others say there were only about a thousand of them. But that thousand were selected stock and dominated every Grecian people.

DOUGLAS H. STEWART, M.D.

THE CITIZEN AND THE PUBLIC HEALTH

There are few things of so great importance to the individual as his health, for upon it depends largely his attitude toward life and his relationship to his fellowman. Generally speaking, those physically well are prosperous and efficient, while the sick or diseased are unsuccessful and inefficient, writes John W. Trask, Asst. Surgeon General, United States Public Health Service.

The health of a community is the combined health of those living in it. In other words, the relation of the citizen to the health of the community is his relation to the health of his neighbors. Upon the health of the community depends, not only the welfare of himself, of his family, but that of his fellow citizens. Health, therefore, of the individual is a condition which can be maintained only by the individual and community effort. Each case of a communicable disease in a city or neighborhood is a menace to the welfare of all the others.

Modern civilization in its development has become more and more complex, and as a result of the many avenues of social and commercial intercourse, we are brought more frequently into contact with our fellowman and his life. When the bread is baked in the house of the consumer it is not exposed to the diseases of the bakers who make it, nor in the shops or through those who deliver it.

When we patronize the barber shops we are liable to exposure to infectious diseases of the many patrons who have preceded us, unless special precautions are taken to have implements and towels thoroughly sterilized. The same danger threatens when we visit the manicurist. We are also exposed to diseases of our servants, as well as the diseases of those whom they visit. The public laundry

in which our clothes are washed is a menace, because of contact with those of other customers.

Milk is a source of danger when purchased from the dealer, through some one or more of the farmers who supply it communicating disease germs to the whole tank into which it is all mixed before bottling. We come into contact with fellow passengers in railway and street cars who may have come from a house where contagious disease exists. The house fly is a constant means of disseminating infectious diseases, including tuberculosis, typhoid fever, etc. The manure pile is the fruitful breeding place for flies. Since this has been ascertained, efforts have been made to abolish this nuisance, not only to the one who owns it, but to his neighbors. Only recently we learn that an injunction was obtained in the court by one living next to a farmer who kept a manure heap forbidding its open exposure in his barnyard.

At church we come into contact with those who may have been exposed to communicable disease in their own homes. The same is true at day and Sunday schools. The common drinking cup in public places; glasses, spoons, forks, finger bowls in restaurants, hotels and at soda fountains are dangerous if not thoroughly cleansed. Towels and napkins are also a source of danger when used in common and in public places.

Do what we will, go where we may, therefore, our own health depends on that of others in the community. The danger of infection is not always from those themselves ill; the greater menace is from carriers. Nor is disease the result of the wrath of God, but due either to infectious germs or to improper living.

The citizen should be interested in the health and welfare of every individual in the community, as well as in all means to conserve that health; thus only can we by cooperation conserve the health of ourselves and that of our families. We should concern ourselves on all measures to bring health to every member of the community, as well as for the moral and social uplift.

ANTITYPHOID VACCINATION

Antityphoid vaccination was introduced into the army in 1909, and in that year it was used on a few children. It has been used

more and more each year since. The results have been very satisfactory. Typhoid is a disease of young persons. Of one thousand deaths from typhoid, collected from the registration area of the United States, one third occurred in persons under twenty years of age, and one fifth of those under fifteen years. One reason why the results were so satisfactory was that in children the reactions are few. Less than 2 per cent. of the children showed a temperature reaction of 103° F. or more. This includes children all over the United States; children in the army posts and in the officers' families and elsewhere.

Surgeon Russell declares, *New York State Med. Journal*, July, 1914, that we never take risks of vaccinating a seriously ill child; a trivial illness, however, is not a contraindication. No cases of typhoid followed, notwithstanding many of them had been exposed to the disease.

In the army, before the introduction of antityphoid vaccination, one man out of every thousand was sick every day of the year; last year (1913) only one in three thousand.

The vaccine should be used subcutaneously only; deep intramuscular injections are apt to produce severe reactions. This fact may doubtless account for the opposition only occasionally noted in the profession.

In closing, the statement is made that there has been a fear that antityphoid vaccination might light up a latent tuberculosis. Statistics show, however, that not only has the steady decrease in the number of cases of tuberculosis in the army been maintained, but that the decrease in the number of cases has been more rapid since the compulsory vaccination. This is, no doubt, partly due to the improved sanitary conditions and the greater care exercised in examination of recruits. *In the annals of medicine there is only one campaign that can be compared to this one, and that is the practical extermination of smallpox by vaccination.*

Of three hundred and eighteen exposed children who were immunized by the New York City Health Department in 1913, but four contracted typhoid, and these were mild cases, without any deaths. So it would seem that in the actual presence of the disease immunization is not only justifiable, but advisable.

ANOTHER OUTRAGE

It comes as a jolt to some of us to have paregoric at length put in stocks and pillory. We have not been deaf to the charges lately brought against it. We know that it is no longer customary to use it. In fact, we shudder at the thought of giving it to our own innocent youngsters. But to have it publicly held up as the instrument for criminals and a thing to be prohibited by law awakens associations that will not be downed.

In the midst of our enlightenment, we cannot but regret the passing of paregoric. It has been an institution—one vastly more pleasant than its twin survivor, castor oil. Moreover, it has been the firm foundation for the jokes of half a century, second only to those about the mother in law. We realize that our regrets are frankly immoral; that they fly in the face of all intelligence, and that all up to date mothers would rate us severely for them. We ourselves must feel a thrill of horror that babies should once have had paregoric and a thrill of relief that the Boylan law will now forbid it them. Only in the midst of the thrills comes the realization that we were the babies who had the paregoric.

We are in deep sympathy with the editor of the *New York Times*, but the laws must be obeyed. In the loss of the timely use of a few drops of paregoric when we were all doubled up with colicky pain in the "tummy"; when the household was completely upset and dear old dad had to do a Marathon with us at midnight; when we were alternately petted and scolded; to be denied the trotting on mother's knees, stomach down, to dislodge the offending wind—what is now to be done?

Who made these laws, anyway! It must have been a lot of grandfathers or bachelors, who lack sympathy with those who have colicky babies, men who have no regard for the long suffering father and mother with such infants. If they had banished castor oil from the face of the earth, they would have received and deserved the universal sympathy of all babies. Selah!

A NEW DRESS FOR THE "ANNALS OF SURGERY"

Volume LX of the venerable *Annals of Surgery* comes to us in a new dress with the July number, No. 1. The publishers inform us

that they have, because of the amount of material of value offering, found it necessary to enlarge the size of the page and also to reduce the size of type heretofore used. At the same time, they thought it wise to adopt a new dress, which we think a very becoming, even a handsome one. The July number contains 136 pages of text, with numerous illustrations. There are articles by Alexis Carrel, Willy Meyer, James G. Mumford, Samuel Robinson, Fred T. Murphy, Robert B. Greenough and Channing C. Simmons, George W. Crile, Charles Goodman, Arthur E. Hertzler and Edward T. Gibson. This is certainly a brilliant array of talent.

The *Annals* is always a welcome visitor to our desk, as it must be to very many others.

BORAX WILL PREVENT THE TYPHOID FLY FROM BREEDING

The Department of Agriculture has discovered a method for preventing flies from breeding in horse manure, garbage cans and refuse piles, in borax. As borax is comparatively nonpoisonous and noninflammable, freely in use in most households, and readily soluble in water, it will be found a convenient article to prevent the development of fly eggs and maggots into the house fly, and thus decrease or prevent their becoming flies if it is faithfully used according to instructions given by the Department. The method for using the borax is to sprinkle it over the surface of the manure or refuse where the eggs are deposited, by means of a flour sifter or other fine sieve. The outer edges are the most important points of attack; then water should be sprinkled over the manure or garbage by means of the ordinary sprinkling can. The quantity advised is .62 (62/100) of a pound for each 8 bushels of manure and a proportionate quantity for garbage. It is hoped that this means of preventing the maturing or multiplying of flies will be generally adopted.

As the borax does not kill the matured fly, only prevents their development from the eggs by destroying them, it will be necessary to continue to use screens on our houses and around our food. It will be a happy deliverance from this disease spreading pest if we can in time by such means as above exterminate them. It will take

time to accomplish, but if common cause is made, it should be brought about.

DR. BOGART'S CLINICS

We wish to direct the readers' attention to the series of Clinics, by Dr. J. Bion Bogart, now appearing in *THE AMERICAN PRACTITIONER*. The first of the series, "Mammary Cancer," will be found in the last, or July, issue. The second, on "Fractures," in this number. The illuminative illustrations should attract special notice. These Clinics will continue to appear from month to month until completed, probably running in all from six to eight months. Those desiring the series complete should promptly send in their subscription to *THE AMERICAN PRACTITIONER* to date from and to include July. There are only a limited number of the July issues to be had.

THE AMERICAN ROENTGEN RAY SOCIETY

The American Roentgen Ray Society will meet in Cleveland, at the Hotel Hollenden, on September 9 to 12, inclusive, 1914. The programme promises to be of unusual interest, and includes a paper by Dessauer, of Frankfort, on the subject of artificial production of gamma rays; Coolidge, the inventor of the Coolidge tube; Scheerer and Duanne will also read papers. The subject of deep therapy and the production of the hard rays will be fully presented and discussed. The rest of the programme will be taken up by a large number of papers on general subjects. The medical profession is cordially invited to attend these meetings.

Dr. Charles F. Bolduan has been appointed head of the new Bureau of Public Health Education, of the Department of Health, New York City.

DIGEST OF CURRENT MEDICAL LITERATURE

Transplantation of a Testicle from the Dead to the Living Body.—G. Frank Lydston, *New York Medical Journal*, July 11, 1914, reports the following interesting experiment:

Man, aged fiftythree years, musician, consulted me June 10, 1914; hard drinker and a gourmand; no history of syphilis; Wassermann negative; history of two tappings for ascites, six years before. A diagnosis of cirrhosis of the liver was made at that time. When the patient first consulted me, his abdomen was enormously distended with fluid. Jaundice had appeared a few days before, and had become quite pronounced. No pain was complained of, nor was there any history of pain previously. The subject was very weak, and markedly incommoded by the enormous bulk of his abdomen. His appetite had been excellent until a few days before, since when it had failed. June 14th, I removed nearly six gallons of bile stained transudate from the abdominal cavity, affording the patient great relief. The liver was found to be greatly enlarged and hard. The gallbladder was greatly distended, and its walls much thickened and hard. In the left iliohypochondriac region was a hard, elongated tumor mass, extending downward from the under surface of the liver for about four inches. This tumor might have been renal, or even omental. It could not be definitely determined that it was attached to the liver. The tumor seemed probably malignant. There was a good sized umbilical hernia, evidently containing only fluid, which freely flowed back and forth under pressure. This had been unsuccessfully operated upon. The urine contained bile in large amount, and a small quantity of albumin, but no casts.

The patient's heart was very weak following the operation, and strychnine was given hypodermically for several days. On the backs of the arms and forearms, the front of the right leg, the buttocks, the lumbar region, and the back were large patches of typical psoriasis, from which the patient had suffered for many years. A patch of psoriasis, of the size of the palm of one's hand, existed on the abdomen, involving a small portion of the skin covering the umbilical hernia.

On June 19th, I implanted in the patient's right scrotal sac a testicle—with the epididymis excised—removed from an apparently healthy subject about twentyone years of age, dead thirty hours before from contact with a live wire. The operation was done ten

hours after removal of the testis from the dead subject—i.e., forty hours after death. The postoperative course was uneventful. The wound healed by primary union, and there was very little swelling about the site of the implantation. The highest temperature recorded was 100 degrees F. Today—the eighth day—the implantation *per se* would seem to be successful.

On the third day after the implantation, improvement was noted in the psoriasis. At present writing, the eighth day after operation, the lesions are so improved that they scarcely can be recognized as psoriasis. The skin over one elbow is nearly normal. The patches upon the back have entirely disappeared. The jaundice has improved, the blood pressure—which was low, on account of the patient's debilitated condition—has increased, the pulse is perceptibly stronger, appetite has greatly increased, the hemoglobin, which was approximately 60 per cent., is now 70 per cent., and there is a distinct improvement in color, aside from the lessening of the jaundice. A considerable reaccumulation of fluid has occurred, and a second tapping probably will become necessary.

I submit without further comment this brief preliminary report of the foregoing results of the primary or initial dose of sex hormone.

Autoserotherapy.—In an interesting article, "Current Developments and Problems in Vaccine Therapy, *Interstate Medical Journal*, May, 1914, Dr. A. Parker Hitchens says:

In the treatment of any pathological condition, the question of diagnosis is always of most importance. Especially is this true in vaccine therapy. The chief point in favor of autoserotherapy is that the bacteriological diagnosis is made automatically, or, in other words, the necessity for a diagnosis is avoided. Apparently the first to use autoserotherapeutic methods were Debove and Remond, who, in 1891, reinjected subcutaneously into a patient suffering with tuberculosis peritonitis small doses of the ascitic fluid collected aseptically. From the temperature elevation following the injections, they concluded that the peritoneal exudate contained tuberculin, and later used this method for treatment. Since then many medical writers have used autotherapy or autoserotherapy in different ways, and for the treatment of many conditions, with varying results. With proper bacteriological control, the method has much to recommend it, but the technic described by some physicians must certainly be condemned. Sputum, discharges, feces and urine are collected without particular care with regard to the avoid-

ance of contamination from neighboring parts; they are received into vessels sterilized sometimes merely by boiling, and in such condition are allowed to stand for several hours—sometimes twelve or more—then they are filtered through a Berkefeld filter, and the filtrate is injected immediately. Every one who has worked with filters knows the difficulty of obtaining sterile filtrates and keeping them so even under the best laboratory conditions.

Autoserotherapeutic treatment cannot be taken seriously, unless specimens are collected with every possible care, placed into properly sterilized vessels, and the filtrates made immediately, so that no opportunity is given bacteria which have no relation to the infection time to develop and possibly elaborate harmful toxins. It would seem especially dangerous to use a filtrate from an infection in any way connected with the intestinal canal, as the presence of the tetanus bacillus might lead to the formation of a lethal quantity of toxin in the the so-called autolyzed filtrate. The filtrate should not be injected under any circumstances until the absence of tetanus and other toxins has been demonstrated, and until the sterility of the filtrate has been ascertained by bacteriological control. The chief field of usefulness of autoserotherapy would seem to be in the treatment of infections not exposed to external contamination, such as empyema, peritonitis, deep abscesses, etc.

The administration by mouth of raw infectious material containing live germs of unknown varieties is obviously inexcusable. If the species of microorganisms present has been determined, and one may feel certain that none of them is likely to do harm when taken into the mouth, oral administration might come into consideration, but only if we had no better methods.

Cause and Cure of Cancer.—W. S. Lazarus-Barlow, *British Medical Journal*, May 9, 1914, suggests that radium in the tissues is the cause of cancer. This view is supported by several observations of the author. It is well known that minute quantities of radium are capable of materially stimulating many forms of living cell. Radium is very widely distributed in nature, in amounts which are capable of causing the multiplication of cells. Bacteria suspended in a fluid containing radium or its salts attract it to themselves. Cancer is conceded to occur most frequently in parts of the body subjected to chronic irritation and inflammation, and it may be accepted that these parts also harbor bacteria in greater amounts than normal tissues. Such being the case, radium in the body would be associated with its accumulation by bacteria in such sites. The alpha rays are known to cause disappearance of Altmann's granules

from cells, and the author states that such granules are always absent from true cancer cells. Radium may be demonstrated in normal tissues, but always in smaller amounts than in cancerous tissues. Gallstones, which are not associated with carcinoma of the bladder, do not contain radium, whereas those found in such association contain relatively large amounts. Exposure to the X ray is a frequent cause of cancer. The opposite of these propositions is also true; larger amounts of radium, instead of tending to accelerate growth and multiplication of cells, are directly destructive of cells. This is particularly true of cancerous cells. The action of radium on cells is selective, not all types of cells being equally vulnerable. Its curative action on cancer does not depend solely on destruction of cells by direct action of the radiations; it has been shown in animal experiments that destruction of a portion of the cells by radium gives rise to an active immunity. This leads to the further regression of the growth, but without immunity cure cannot be expected. If destruction of the cancer cells has been too extensive, no immunity is produced, and a recurrence may be expected. In spite of his belief in the curative powers of radium, Lazarus-Barlow advises strongly against its use in any case in which operative measures are possible.

Notes in the Study of Potassium Mercuric Iodide.—*Journal American Medical Assn.*, 1914. D. MacFarlan presents quite an extensive study of this drug. He shows that in a dilution of 1 to 80,000 it renders cultures of bacillus typhosus, staphylococcus, bacillus lactis bulgaricus, yeast-sugar solution and bacillus acidi lactici, sterile; even in a dilution of 1 to 90,000 the bacillus typhosus was killed. The preparation of the drug, its toxicity, the effect on physiological activities, and its uses are discussed. Little can be said of the noxious effects on the gastrointestinal tract when the drug is taken internally in mild doses. There is no inhibition of ferment activity, and such harm as could occur would arise from the destruction of intestinal bacteria.

Regarding its internal uses, the author states that it seems to have a marked effect on all catarrhal conditions of the mucous membranes, clearing up the common cold, apparently shortening the course of croup, and modifying the acute infections of the nose and throat and bronchi.

It has its greatest field of usefulness, however, as an antiseptic. It is practically universal in its possibilities, for in great dilutions its local effects and toxicity are insignificant, while its germicidal

qualities still remain high. The value of these virtues can readily be realized from the following facts brought out by the author:

1. The drug may be taken internally in doses of 5 drops of a 1 per cent. solution without toxic effect.
2. A 1 per cent. solution is but slightly irritant.
3. A dilution of 1 to 80,000, or nearly one thousandth of 1 per cent. exhibits marked germicidal effect.

By its use the purulent discharge of so many minor surgical cases, such as infected burns, old leg ulcers and ragged wounds, is rapidly cleared up. Even when the infection is somewhat subcutaneous, as in felons and boils, and there is as yet no pointing or definite formation of pus, a wet dressing of 1 per cent. potassium mercuric-iodide will usually reduce the prolonged course of the case, and will frequently abort it altogether.

For sterilizing instruments the drug is excellent, except for its tendency to tarnish if left in contact too long; this, however, can be easily overcome by the addition of sodium bicarbonate to the solution.

Acute Cystitis Due to the Bacillus Aërogenes Lactis.—*Journal Clinical Research*, 1914, vii, i. J. A. Luetscher reports two cases of bacillus aërogenes lactis infection, the first a cystitis in a woman of twenty-eight, two month's pregnant, and the second a urethritis in the woman's husband.

In the case of cystitis the symptoms were acute, confining the patient to bed, and showed considerable tendency to recurrence, but cleared up in four weeks. Catheterized urines taken on the sixth and ninth days showed pure cultures of the bacillus aërogenes lactis.

In the second case, the urethritis developed four days after the acute symptoms appeared in Case I. The discharge was yellowish, watery and acid, and contained a few pus cells, but no gonococci. Frequency of urination with tenesmus and a temperature of 103 degrees F., with prostration, headache and nausea, developed, subsiding by the tenth day. It was followed by an acute epididymitis on the twelfth day, with a temperature of 104 degrees F., terminating in recovery on the twenty-ninth day.

A blood culture on the sixth day and a Widal test on the ninth day were negative. Catheterized urines on the ninth and fourteenth days showed pure cultures of bacillus aërogenes lactis.

The organism was an encapsulated bacillus with rounded ends, which did not stain by Gram's method. Colonies on agar plates and agar slants were about one millimeter wide and of a bluish

opalescence; on potato there was a heavy yellow viscous growth; milk was coagulated in twentyfour hours with acid production, and in a fermentation tube, with saccharose solution there was considerable gas formation.

The morphology, capsule formation, absence of motility, rapid coagulation of milk and gas formation leave no doubt as to the identity of the organism. The author calls attention to the possibility of the first case being regarded as due to the colon bacillus and the second case as a gonorrhea, without careful bacteriological study.

Precancerous Conditions.—*Ztschr. f. Geburtsh. u. Gynäk.*, 1913. D. Von Hanseemann says the cause of cancer is chronic irritation; this irritation leads to the disease, however, only if there is an individual predisposition. In order for cancer to arise there must be an anaplastic transformation in the character of the cell caused by the chronic irritation. The greater the predisposition, the shorter the period of irritation necessary to produce cancer. Cancer after sixty years of age is rarer, because the individuals with predisposition have died before that age. There is no one single cause that applies to all cases of cancer; there probably are cases where anaplasia is lacking, and where the theories of Cohnheim, Thiersch and Ribbert are not applicable.

The precancerous diseases belong mostly to the group of chronic inflammations which lead to hyperplastic changes. Other non-inflammatory hyperplasias that have such a tendency are polyps, hypertrophy of the prostate, goiter, hypernephroma; secondary atrophic conditions of the stomach with hyperplastic changes, especially in the region of the pylorus, such as follow malaria, syphilis and intoxications; scar formation in the lower extremities (Bergmann); papillary growths in the rat's stomach from parasites (Fibiger); similar growths in the bladder (Loewenstein); transformation of stomach ulcer into carcinoma, though not always, as Aschoff justly claims; scars from burns; and, rarely, trauma is followed by the formation of carcinoma.

It is the duty of the house physician to contribute to the clearing up of this question by noting all factors that might lead to the development of cancer, such as chronic irritations, trauma and other injuries. Only in this way can we see the first act, the precancerous stage, of which we now see only the last act, the cancer, in the hospitals.

Prophylaxis of Puerperal Fever, Caused by Spontaneous Infection.—*Zentralbl. f. Gynäk.*, 1913, xxxvii, 1443. P. Zweifel. In

spite of all methods of disinfection, puerperal fever has not yet been conquered. However, Zweifel thinks he has now found a means of accomplishing this. Lactic acid ferment is a part of the normal content of the vagina, and pregnant women with an abnormal vaginal secretion have very little acid. Therefore, in such women, prophylactic irrigations of 5 per cent. lactic acid were carried on for ten days. Under this treatment, women with abnormal vaginal secretion were not troubled with fever any oftener than normal women; the morbidity fell from 28.6 per cent. to 7.6 per cent.; while in those with normal secretion it is 7.2 per cent. Twenty-one per cent. of the women who had less than ten irrigations had fever. Schweitzer has shown that the vaginal flora changes in character under the influence of the irrigations.

Zweifel reports a case of a woman who died of puerperal fever, and another who had a very severe case of it, without any examination by the midwife; he also cites cases reported by Poten. The old saying that danger always comes from outside is not true, but autoinfection is not the right term; it is a spontaneous invasion of germs. The practical conclusion to be drawn is that the midwife should always report cases of abnormal vaginal secretion, and the physician should treat them; moreover, in case of death from puerperal fever, the midwife should not at once be blamed, but all the conditions in the case should be carefully examined.

Bloodpressure.—In the London letter contributed to the *Medical Record*, May 9, 1914, reference is made to bloodpressure as follows: At the Hunterian Societies' annual debate, Dr. Hall said, so far from being an enemy, high tension was often the patient's best ally, the very means of maintaining the activity of the kidneys and preserving his life. Disaster might, therefore, result from attempts to reduce pressure; but, on the other hand, there was danger in stimulating treatment of arteriosclerosis with high pressure. A pressure of 200 mm., with any sign of cardiac failure, called for absolute rest. The skin required attention: baths of various kinds suited to the cases, Turkish, electric, Mannheim, etc. Diet must be regulated, both as to quantity and quality. Alcohol was almost always injurious. Tea and coffee in moderation only should be allowed. Abundant drinking of pure water was indicated. Tobacco most moderately indulged in; with original symptoms, not at all. Of drugs, calomel, blue pill and saline aperients were useful, and iodides in small doses over a considerable time. In Wassermann reaction, mercury, preferably by inunction. Powerful, quickly acting vasodilators, as amyl nitrite, nitroglycerine, erythrol tetra-

nitrate, should be reserved for emergencies. Blood letting was of greatest service in some cases, as nature often indicates by copious epistaxis.

An Important Difference Between Normal Birth and Artificial Delivery.—*Beitr. z. Geburtsh. u. Gynäk.*, 1913, xix, 1. H. Sellheim. The birth power (this expression is better than expulsive power) consists in an element that molds the fetus and an expulsive element. The latter exerts a force on the fetus from all sides and from behind. In artificial delivery the first element is lacking, the individual parts of the fetus having no pressure exerted upon them, as is shown by schematic figures in head and breech presentations. The head is readily separated from the shoulder by forceps; the shoulder stays back, its delivery following more slowly than in normal birth. In pelvic presentations the pelvis is drawn forward by the forceps, while the arms and also the face and chin hang back. Even a combination with expression does not get the same results as natural birth, for uniform pressure cannot be exerted on all sides; this is partially compensated for by the fact that all operative procedures induce birth pains. By utilizing these pains as much as possible, disturbances of the normal condition of the fetus in artificial delivery may be avoided.

Röntgen Diagnosis of Vesical Calculi.—Cong. de l'ass. franc. d'urol., Paris, 1913. *Journal de Chirurgie.* Arcelin shows that the röntgen diagnosis of vesical calculi is particularly difficult, because of the opacity of this region to the X rays. The plate may show a shadow in the bladder region, but there is nothing characteristic about it. It has to be identified by clinical and instrumental measures. If the plate does not show a shadow, there may, nevertheless, be a calculus. In practice, about 50 per cent. of vesical calculi escape radiographic demonstration. Accessory methods, such as injection of water, oxygen and collargol, are very difficult to use. Aside from these limitations, röntgen examination has its advantages. In patients with stricture of the urethra, diverticula of the bladder, etc., exploration by X rays may show calculi that could not be diagnosed by any other means.

COMMUNICATION

To the Editor of the American Practitioner.

In connection with the communication from H. Pereira Mendes in the June issue of THE AMERICAN PRACTITIONER and more especially with reference to the section: "Can any of your readers indicate any publication or data showing that the health of the child, youth, maiden, man and old man is influenced by his embryo life? How many men and women become invalids through carelessness of the mother while they were in the embryo, just as a house betrays decay all the sooner if erected on faulty foundations, or constructed with inferior material?"

If the reverend Mr. Mendes will consult Ballantyne's Ante-Natal Pathology, he will find ample evidence of a clinical nature that the state of health of the parents, and more especially of the mother, has a very profound influence upon both the development, in the way of relatively arresting it, *in utero*, and also, upon the subsequent health of men and women. If he will consult the works of experimental teratologists, more especially Fere, Mall and Stockard—the latter, professor of anatomy in Cornell University Medical School—he will find an ample explanation of why toxic states of the parents, at the time of and prior to impregnation, and of the mother during pregnancy, exercise a baneful influence upon both the development, the constitution, and the health of the offspring of such parents. Finally, if he will consult the PRACTITIONER of 1912, he will find an article by the writer entitled: Environmental Arrest of Development, or Evolutional Developmental Hypoplasia of Environmental Origin. Vol. xli, 559-561—in which these matters are discussed in principle.

CHARLES P. NOBLE, M.D.

THERAPEUTIC PROGRESS

Marriage License Requirements.—The Medico-Psychological Association at its meeting in Baltimore on May 21, refused to pass a resolution recommending the enactment of laws requiring a "clean bill of health and evidence of normal mind before the issuance of a marriage license." It was believed that the passage of such a resolution would be the cause of much ill-considered legislation, and that the number of marriages would be considerably reduced by such an attempt to raise the standard. Eugenics, it was agreed, was a phase of an ideal state of society not yet attained and improvement would come rather through popular education than through statute.

Infant Mortality in New York City.—According to a tabulation of W. H. Guilfooy, registrar of records of the Department of Health, New York City, the death-rate per annum of children under five years has fallen from 96.5 per 1,000 in 1891, to 61.3 in 1901, 43.8 in 1911 and 37.3 in 1913. For the summer months—June, July and August—the death rate of children under five years of age during the same period was 125.1 per 1,000 in 1891, 76.2 in 1901, 46.3 in 1911 and 38.8 in 1913. This reduction is believed to be due largely to the use of pasteurized milk, but doubtless also to other hygienic and sanitary measures adopted as the result of a constant agitation, legislation and the efforts of the health authorities.

Street Accidents.—The National Highways Protective Society, *Medical Record*, June 13, 1914, reports that during the month of May forty-five persons were killed by vehicle traffic on the streets of New York City. Thirty-two of the victims, or more than 70 per cent. were less than sixteen years of age. During the month of April 5,352 accidents occurred on the railroads and street railways under the jurisdiction of the Public Service Commission of New York. As a result of these there occurred twentysix deaths, as compared with seventeen in April, 1913, and twentytwo in April, 1912. In addition, nine persons had their skulls fractured, three lost an arm or a leg, and 142 others were seriously injured.

Aconite as a Vasodilator.—Dr. William Hanna Thomson, of New York City, *Medical Record*, June 6, 1914, states that after many years of experience in the use of aconite in chronic interstitial nephritis, he regards it as the most efficacious vasodilator which we possess, when given systematically in full doses. Aconite thus administered reduces, at once, the blood pressure, produces a full and compressible pulse, and greatly increases the percentage of the elimination of urea in interstitial nephritis. The most important action of aconite, when administered in interstitial nephritis, is to increase the elimination of urea. The beneficial effects of aconite are particularly pronounced in mental derangements of the nature of melancholia with high blood pressure.

A Case of Tetanus Treated with Subcutaneous Injections of Carbolic Acid with Recovery.—W. Graham Reynolds, London, in the *Lancet* of May

23, 1914, reports the case of a boy aged eleven, with a wound of the foot. The period of incubation was ten days. It was a well marked case. He was treated by being anesthetized, whereupon the wound and scar were excised, and pure carbolic acid was applied. At the same time the subcutaneous injection of carbolic acid was started, one ounce of a 1 per cent. solution being given in the right axilla. Under chloroform anesthesia the injections were repeated, the strength of the carbolic solution being raised to 3 per cent. The groins and axillae were treated alternately. Chloroform was administered at each injection to relieve the spasms produced by the stimulation of the needle prick. In addition, potassium bromide and chloral hydrate were administered. The patient was discharged cured on the fiftysixth day. No antitetanic serum was used.

Strychnine Tuberculin Treatment.—J. H. Whelan, *British Medical Journal*, May 16, 1914, finds great advantage in giving daily doses of strychnine along with weekly doses of tuberculin, particularly in hospital cases of tuberculosis. He gives a single large dose each day, administering from eighteen to twentyfive minims of a one in 400 solution of strychnine hydrochloride intramuscularly. He gives strychnine in all cases, even where tuberculin is contraindicated, "And with invariably good results." Appetite and general condition are always improved. Debove's lavage often becomes unnecessary. Pulmonary hemorrhage is no contraindication to strychnine. He believes that the drug "stimulates the formation of antibodies, especially when combined periodically with tuberculin."

Colloidal Sulphur in Treatment of Gonorrhea.—*Dermatol. Wochenschrift*, 1913. K. Hedén used colloidal sulphur in treating 10 cases of gonorrhea in women. The treatment consisted of irrigation of the urethra twice a day with a one to two per cent. solution; the cervix is touched twice a day with a 10 per cent. solution and in cases of involvement of the vulvovaginal glands, a 4 per cent. solution is injected into them. In irrigation of the bladder there was often severe pain. The treatment of gonorrhea of the uterus often had to be given up because of irritation. The bactericidal effect is considerable, but not so great as that of the albumin silver combinations.

Intraspinal Injection of Magnesium Sulphate in Treatment of Tetanus.—Vulliet, *Revue Medical de la Suisse Romande*, February 20, 1914 (*J. A. M. A.*, May 2, 1914), reports two cases of tetanus, but only one patient recovered and this was not the one treated with magnesium sulphate. He warns that while this drug seems to be proving a powerful weapon in fighting tetanus, yet we must not forget that it is a two edged sword, liable to do more harm than good. He injected into the spinal canal 0.06 c.c. of a 15 per cent. solution repeated two days later. The boy's leg had been cut by a cart and a physician had disinfected the wound and coaptated the lips with clamps. It healed promptly, but symptoms of tetanus developed in two weeks.

MISCELLANY

SUBSEQUENT REPORT OF PATIENTS WHO RECEIVED INJECTIONS OF FRIEDMANN VACCINE OVER A YEAR AGO

BY GEORGE MANNHEIMER, M.D., NEW YORK

Owing to the scarcity of reliable reports, I thought that those still interested in the subject might gain some information as to the value of the Freidmann vaccine from an account of even a limited number of well observed cases. Eighteen patients were injected under my supervision early in March, 1913, i.e., fourteen months ago. A preliminary report on these patients was made in the *Medical Record* of June 7, 1913. I summarized the result at that time as follows:

"In not a single one of these eighteen cases was there definite improvement to date, attributable to the vaccine. In some the disease progressed, evidently unchecked. In no instance did the temperature return to normal. Five of the eighteen developed abscesses, four of them small, and one large. Excepting this case, I could not say that any distinct injury has been done by the vaccine. I cannot determine whether the vaccine hastened the progress of the disease where it has occurred."

There is one error in that summary. Instead of "five" of the eighteen who developed abscesses, I should have said "six." To-day I have to add a seventh one, who developed an abscess from his fourth injection, whereas all the others had it at the site of the first. Otherwise there is not much to modify in that summing up.

Conclusions: Of eighteen patients treated in March, 1913, under my supervision, fifteen could be followed up, and of that number three are dead. The number of injections in these three cases were one, two and four, respectively. Of the remaining twelve patients, ten received one and two four injections. Five of the ten patients who received one injection developed abscesses at the site of the injection, and were, therefore, unsuitable for further injections for an indefinite period, according to the inventor. The other five patients were not reinjected, either because they did not see the improvement they had been led to expect, or because they had become worse, and had lost confidence in Friedmann. As to their present condition, five of them are now unchanged, and five are worse than a year ago.

One patient, who had four injections, feels well, and presents signs of an arrested lung process; but he has not gained in weight, and has developed a new tuberculous process in another part of the body. The second patient, with four injections, has tuberculosis of the kneejoint, and is now decidedly worse than before; he has, in addition, developed genital tuberculosis. The infiltrate of the fourth injection broke down and discharged pus.

Where abscesses resulted at the site of the first injection, the vaccine apparently produced no additional harmful effect. The disease remained uninfluenced. Friedmann neglected to prevent abscess formation, although he claimed to know how. To be very charitable, one might judge from one single case that decided natural healing tendencies, aided by common sense treatment, will not be hindered by the remedy. When in a quiescent case the first subjective and objective symptoms of a new outbreak appear, and one naturally wishes to check it, the remedy is absolutely worthless for that purpose. It cannot prevent the tendency to spread, if a case is so disposed. We have on purely clinical grounds a right to be suspicious of its alleged harmlessness. The method of its administration has been anything but careful and intelligent. For these reasons, and on account of the absence of curative and preventive powers in this series, it cannot be recommended.

—*Medical Record*, June 13, 1914.

HEREDITY AND ENVIRONMENT

In these days great prominence is ascribed to heredity as a factor in the production of the genus homo, his physical and mental attributes. The too enthusiastic eugenists seem to hold that the salvation or regeneration of the civilized human race lies wholly in breeding from good stock. Hence have arisen somewhat utopian schemes for so regulating marriage that only those who are physically and mentally fit shall be allowed to propagate the species; that is, under the law. While there is little doubt that the wholesale reproduction of the unfit, as it is going on in some countries at the present time, must in the end result in the national decadence of those countries, so radical a remedy as that referred to is not likely, at all events at present, to pass into law. Nor is it by any means certain that were it to become law it would bring about the results anticipated. In the first place, it may be urged that physical excellence is not the only quality to be desired in man or woman, and it may be pointed out that many of the greatest personages in history have not been normal in mind or body. A dead level of sane and talented mediocrity, even if it were possible to accomplish it by judicious selection, would not be an unqualified success. At the same time, since Nature's law of the survival of the fittest has, by our humane instincts, been almost completely overturned, it seems that steps should be taken to prevent the obviously unfit from propagating their kind. It must be borne in mind that degenerates are more prolific than intellectuals; they are irresponsible, economic facts have no influence on them, and they produce another generation as bad as or worse than themselves. That like breeds like is to a very great extent absolutely true; consequently the feeble minded, and possibly those suffering from gross diseases, as syphilis and tuberculosis, should be prevented by law from reproduction.

There is another branch of the science for improving the race which is to the fore at the present time, that of eugenics. The ardent eugenists assert that environment has as much to do with degeneracy as breeding, if not more. On the face of it, they have quite as strong a case as the eugenists. Civilization, industrial civ-

ilization in particular, has been responsible for more degeneracy than any other one cause. It is in those countries where industrialism has held sway longest that degeneracy is most marked and prevalent. Environment was the first cause of degeneracy, and throughout in its production has been as potent a factor as bad breeding, so called. In the campaign against degeneracy, and in the laudable efforts being made in this country and in other parts of the civilized world to improve the race, the first measures must be to supply better environment. So long as people in manufacturing centers are massed together in small, unhealthy dwellings, or are allowed to work in badly ventilated, unsanitary factories or stores, just so long will degeneracy flourish. Improved environment will not mean the end of degeneracy, but it will be a long step in the right direction. There need be no conflict, however, between eugenists and euthenists: their aims are identical, and there is every reason why they should work together in harmony to the benefit of the race. The only difference appears to be that, while the course of the euthenists is clear, that is, to improve environment, the path of the eugenists is not: still they will learn by experience and profit by their mistakes. In all countries there is ample room for working out the theories of both eugenists and euthenists.

—*The Medical Press*, July 8, 1914.

WORK

Work is doing things because we must. They may be things we like doing or not, but the essential thing about them is their necessity. Willy nilly, work is what we must do. When we do it is another question. Sometimes we must do it now, energetically and finally; often we can leave it over until tomorrow. Some of us work for a fixed time and know that, once closing time has come, we are free till the clock comes round again. We often like our work, or even enjoy it. But we feel that enjoyment is furtive and forbidden. "In the sweat of thy face shalt thou eat bread." That was a curse; but we are often in danger of making our bread earning a pleasure. The Germans, a plodding race, who often miss the prize, have been investigating work. They have been trying to determine the best time for it—a futile waste, for only a few can choose. They agree that the morning is the best time for mathematics or economics, and that a tired mind cannot remember. They are satisfied that school children should not work at night. It is worse than a waste of time, and the effort to make the brain work at all is absolutely harmful. Evening is story telling time, and always was from troglodytic days. The imagination is unfenced, and wanders in the pastures of the stars. But many men tear up in the morning what they wrote the night before. We should have many philosophers at the breakfast table. We do not, because they are not properly awake. All these results are, no doubt, worth knowing, and their authors have done some little thing to advance knowledge. But most of us cannot choose the time for our work. We work when we must; and our casual fellow workers work when they feel like it, or when there is nothing better to do. Anyway, it can do no harm to record the facts.—*The Medical Press*, July 8, 1914.

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ORIGINAL ARTICLES

SOME POINTS ON THE PHYSIOLOGY OF THE HEART'S ACTION AND THEIR BEARING ON TREATMENT

By SIR JAMES BARR, M.D., LL.D., F.R.C.P., F.R.S.E.

Consulting Physician Liverpool Royal Infirmary

I suppose in the same way that we speak of healthy function we may speak of function which is ill at ease or diseased, and thus we may pass from the normal sequence of events in cardiac movement to the numerous irregularities which occur under pathological conditions. However, it is well to know something of the normal function of the heart before studying the numerous vagaries which occur in the exercise of that function. The study of the movements of the heart has received a great impetus in recent years from those who have been promulgating in season and out of season its myogenic function, whether that impetus has carried us much nearer the truth is quite another matter.

The myogenists tell us that the rhythmic function of the heart is started and maintained by a stimulus generated at the sinoauricular node, and somehow or other this stimulus travels through the auricles down the auriculoventricular bundle to the apex of the ventricles and the papillary muscles, and back again to the base of the ventricles. What is the nature of this stimulus and how it is propagated God only knows, as the nearest approach to a definition which I have heard is that a *stimulus* is a *stimulus*. In this case it is not Scotch whisky, but just a stimulus to contraction.

Now, there are any number of stimuli to contraction—chemical, electrical, mechanical, and thermal, but this peculiar stimulus, about which we hear so much and know so little, defies analysis or definition. As to its mode of propagation nothing definitely is known except that it is supposed to travel along the auriculoventricular bundle, and at the Stannius bridge between the auricles and ven-

tricles it moves very slowly, and, like an old flintlock gun, often misses fire. The muscle fiber in this neuromuscular bundle is quite different from the ordinary cardiac fiber and there is no evidence that it ever contracts, and if it does its doubtful muscularity would point to its contraction being slower than even that of involuntary muscular fiber.

How, then, can it convey this unknown stimulus as quickly as even a slowly contracting auricle? Some years ago Head suggested, without adducing a tittle of evidence, that this bundle has got a wave of contraction of its own, which wave is picked up and reinforced by the ordinary cardiac muscles. We have got a neuromuscular bundle of peculiar construction for which the myogenists seem to have found a use in carrying an imaginary stimulus over the heart—they seem to forget that it might be of use as a nervous as well as a muscular connection between the auricles and ventricles. However, the bundle does not seem to be always necessary for the propagation of a wave of contraction, as Englemann has shown that when one end of a strip of cardiac muscle is stimulated to contract the other end may follow suit even when the intermediate portion of muscle is frozen.

There are various embellishments of this myogenic theory, such as *negative chronotropic*, *dromotropic*, *bathmotropic* and *inotropic* influences. This stimulus runs the risk of being more or less frequently blocked by disease and drugs—especially by that much abused drug, digitalis, so it has been necessary to assume that every healthy muscle cell of the heart has the power of producing a stimulus of its own which it constantly does, and this is as constantly used up with every contraction, so that after each systole the heart is bankrupt of stimulus.

The myogenists have been getting into some difficulties of late with the bundle, because there have been cases of heart block where the bundle was afterward found to be healthy, and cases of normal rhythm where the bundle was destroyed. Now, Stanley Kent has come to the rescue in the *British Medical Journal* of July 18th with one or more bundles linking up the right auricle and right ventricle and the left auricle and left ventricle. No doubt, these bundles are extremely useful, otherwise they would not be where they are, and probably, like the rest of the nervous mechanism of the heart, may save that organ from many an unnecessary jar and strain, but how long their function may be misinterpreted it is difficult to say.

From a therapeutic point of view, so far as I can see, this apparently learned jargon to which we are regularly subjected leads

only to the grave. If the heart comes to a standstill in syncope or chloroform poisoning are you going to wait for an imaginary stimulus to start at the sinoauricular node? If you do there may be an eternal silence. The proper plan is to apply a *real stimulus* inside the right auricle and ventricle of a pressure of 80 to 100 millimeters of mercury by hanging the patient up by the heels.

It seems to be forgotten that rhythmic action is the function of all muscle, even the skeletal muscles act rhythmically under certain conditions: witness an ankle or patellar clonus. A pressure of six or seven atmospheres will make any voluntary muscle contract rhythmically, and they can be made to obey a certain rhythm by electric stimuli. The involuntary muscular fibers possess the function of rhythmicity in an especial degree, and the more closely the cardiac fiber approaches the unstriped variety of muscle the more highly does it possess the rhythmic quality. Hence, the auricles are more irritable and contract more slowly than the ventricles, and the right side of the heart is more irritable than the left. I have seen the right auricle respond to mechanical stimuli hours after the rest of the heart had ceased forever to beat.

If the heart were actuated by a stimulus generated at the sinoauricular node, then, under any given set of conditions, the stimulus would be paid out with rhythmic regularity and the heart would work like a clock. Some of our myogenic friends are bold enough to say that such is the case, but those of us who deal in hundredths of a second and who are not content with such gross periods as a fifth and a tenth of a second, know that such is not the case. Nature is much more accommodating than the postulates of your heart specialist; the heart is constantly adapting itself to the work which it has to perform.

In every person with a healthy heart and good vital capacity there is a constant variation in the frequency of the contractions and in the length of the systoles and diastoles; there is doubling of the first sound of the heart at the end of expiration and commencement of inspiration, and of the second sound at the end of inspiration and commencement of expiration. Doubling or quasi doubling of the heart sounds is among the commonest of cardiac phenomena, and can only be accounted for by a certain amount of asynchronism at the beginning and end of the contractions of the two ventricles; the two sides of the heart are for all practical purposes separate organs, linked together and set to the same time for their own mutual advantage and support, but each has got its own work to do and does it, and in doing it there is no reason why there should be perfect unison at all points. When there is any asynchronism

in health the right ventricle always acts in advance, but it is quickly overtaken by the more rapidly contracting left ventricle, and when there is doubling of the second sound the final element is usually the pulmonic—this is not always the case in disease where there is great variation in the capacity and relative efficiency of the two ventricles. In a very bad case of Stokes Adams disease, which I published in the *British Medical Journal* in 1906, the patient could always stop his left ventricle and bring on a convulsive seizure by taking a deep inspiration; the left ventricle remained quiescent until the right ventricle filled up the pulmonic vascular cavity and raised the diastolic tension within the left side of the heart.

I have known a good many heart specialists in my time, and they are nearly all now dead from heart disease or cerebral softening, possibly because they took their own physic.

It is very pleasant to pass from the speculations of heart specialists to the sound work which is being carried on at Cambridge by Ralph Mines, who has just been appointed Professor of Physiology at McGill University, Montreal. He has shown how the cardiac contraction is dependent on a difference of electrical potential between the ions within and without the cells. In an experiment which I recently saw in his laboratory on cutting the calcium salts out of the nutritive fluid supplied to the isolated heart, it was there seen that the electric variation preceded the contraction of both the auricle and ventricle, and, whether the cause or not of the contraction, it began the sequence of events and, therefore, could not be the result of the contraction. The effect of pressure in stimulating contraction is well exemplified in the isolated mammalian heart when it is supplied with nutritive fluid through the coronary arteries; there is a regular rhythmic contraction, and, in addition, when the right ventricle gets filled with the return current, it gives an extra contraction on its own account to expel the fluid.

In a paper read at the meeting of the British Medical Association in Liverpool Mines said:

"I have recently made experiments in which the electrical variation, as recorded by the string galvanometer, is studied simultaneously with the mechanical behavior of the perfused frog's heart. The leading off electrodes are placed one on the sinus, and the other on the apex of the heart. (The electrograms thus obtained, it is curious to note, often resemble the human electrocardiogram to an extraordinary degree.) When the perfusion fluid is changed to one containing no calcium, it often happens that the contractions of the heart are reduced in amplitude to a very great extent, while the electric variations are very little affected. We have many reasons

for believing that the excitation process in muscle can be dissociated from the contractile process, and it seems clear that the electric variation is a direct index of the excitation process, while the contraction is a sequence, usual, but not quite inevitable. Just as in nerve, excitation occurs (but no contraction), so in muscle excitation occurs; if the contractile mechanism is in order, excitation is followed by contraction."

The experiments just described rather suggest that calcium is of peculiar importance for the contractile process in heart muscle. It is, however, also of importance for the excitation process; the frequency of the excitations is affected by removal of calcium, and later there may be interruption of the sequence of auriculoventricular excitations.

In a recent letter to me he suggests the following working hypothesis which takes count of all the data we have on the subject:

"The electrical and mechanical processes both have their seat in muscle. When the muscle becomes 'excited' (whether naturally or by an artificial stimulus), the first change to occur is a sudden local liberation of acid. We know lactic acid is formed in some part of the processes which follow stimulation, and we know, from experiments on artificial systems of membranes, that the appearance of acid in a membrane system is bound to give rise to difference of potential. It is not unreasonable to argue, then, that the observed potential changes indicate the time at which the liberation of acid starts. Now, it is quite possible that the liberation of acid may cause shortening, i.e., mechanical movement; this can be shown in a simple model. Certain colloidal materials, such as fine strands of catgut soaked in water contract with considerable force when treated with dilute acid. The effect can be repeated again and again if the acid is removed and replaced. It may be, then, that the part of the muscle responsible for the actual shortening is only one portion of the whole muscle mechanism.

"Suppose the contractile material (the material which shortens when it is acidified) to be an easily dissociated compound of calcium with some protein material. If, then, calcium were entirely removed from the solution bathing the material, the Ca compound would break down and the protein residuum might well have different properties—e.g., it might fail to shorten when acid was liberated in contact with it. Thus the electrical changes, directly indicative of the chemical change, might persist when the mechanical change no longer followed. Replacing the calcium, the contractile material is reformed in its old place and contraction can reappear."

So far as we at present know, the presence of free calcium ions in the blood and tissues is necessary for effective muscular contraction. The calcium ions increase the force of muscular contraction, but diminish its irritability, and, according to Loeb, inhibit the rhythmical contraction of muscle fibers, which he thinks does not depend on lessened excitability, but on some chemical combinations of the calcium ions in the muscle which renders its rhythmical contraction more difficult or impossible. Sydney Ringer, in association with Dr. Dudley Buxton, showed that the effects of the salts of sodium, potassium, and calcium on skeletal muscles were somewhat different from their effects on the heart. The contractibility of skeletal muscles, perfused with normal saline solution, lasts longer, but when exhausted there is a greater delay in relaxation. The contractions are strengthened and the relaxation delayed by potassium salts. On the other hand, the lime salts accelerated both contraction and relaxation. Personally I have usually found that patients liable to cramp, especially of the calf muscles, had a deficiency of lime in their blood, and thus the remainder contraction, so apt to occur in exhausted muscles, is not counteracted by a sufficiency of calcium. I still hold my former opinion that the calcium ions lessen the irritability of the heart muscle, and Blair Bell has shown that where a solution of calcium chloride was injected into the vein of a rabbit the rhythmical contraction continued, the amplitude of the contractions increased, but their frequency diminished, and when a poisonous dose was used the heart finally stopped in systole.

Recently Blair Bell, when suffering from serum sickness after septic poisoning, reduced the frequency of his heart beats from about 120 to 80 by a few large doses of calcium lactate, and he then felt his heart uncomfortably thumping against his chest walls. In many acute affections the calcium salts are readily thrown out of the blood, hence, a frequently renewed supply is demanded; but, unfortunately, long after the demand is satisfied the supply continues, owing to the indiscriminate use of milk in all the ills to which flesh is heir. Nowadays milk is not confined to babes and sucklings, but has been extended to those of riper years. This inordinate supply of lime salts increases the viscosity of the blood, raises the bloodpressure, hastens the formation of scar tissue, and leads to degenerative changes in the vessels and heart. When there is an excess of calcium ions in the blood, the cardiac contractions are apt to become infrequent, slow, and ineffective, and owing to the greater muscularity of the left ventricle its irritability becomes less than that of the right, and the rhythmicity of the latter being greater it tends to act in advance; hence, we get irregularities and

intermissions. In a case of rapid and irregular heart which failed suddenly there was found double the quantity of lime in a gram of the left ventricle to what was found in a gram of the right. A similar inhibition is also often induced by digitalis; which seems not only to inhibit the action of the heart, but also to disturb the balance of bloodpressure in the two sides. When the pulse becomes very slow, as in Stokes Adams disease, it is well not only to cut off the lime salts and use decalcifying agents, but use such ions as stimulate rhythmical contraction, such as sodium, chlorine and iodine with thyroid. The treatment of Stokes Adams disease has hitherto not been very satisfactory or successful. There seems to have been a block against any progress in treatment, as well as against the transmission of the peculiar stimulus. The very slow pulse is supposed to be due to degeneration of the bundle of His, and so only every second, third or fourth wave is able to jump the barrier, and reach the ventricles. There is no drug yet known which will either get rid of this block or enable every stimulus to travel along this Stannius bridge.

Fortunately, in these cases, life does not hang by so rotten a thread. The apex of a frog's heart when cut off remains at eternal rest, but if you tie a canula in it and supply it with nutritive fluid, *under pressure*, its rhythmical contraction starts again. This affords a better indication for treatment than any idea which you may hold about the function of the auriculoventricular bundle. Maintain a fair diastolic pressure in both ventricles, wear a tight abdominal belt, or when in bed a shotbag over the abdomen. I am inclined to think that in these cases frequent shallow breathing is better than long and deep. The degenerative changes in these cases are not confined to the bundle of His, though you may occasionally find it stated in *post mortem* records that every other part of the heart was healthy. Personally I have never seen one of these hearts quite healthy, and my retort to such a statement would be that the treatment must have been bad to have allowed such a heart to stop.

The effective force of the right ventricle is often more impaired than that of the left, and in such cases it does not keep up sufficient diastolic tension in the left side. If the patient have a large vital capacity, a deep breath may so lower the tension in the pulmonary circuit that there may be two or three beats of the right ventricle before there is any response of the left. If I were suffering from this disease I would rather be treated according to the principles of Stokes than by any one of the modern school, and I might even take very kindly to his alcoholic prescription. I am in-

clined to think that a moderate amount of beer, stout, or diluted claret might do good in those cases, by increasing the diastolic tension in the ventricles. The irritability and metabolic activity of the cardiac muscle can be improved by thyroid and iodine and the sodium salts. There is usually an excess of lime, probably in a stable state, and for this condition I recommend large doses of sodium citrate with small doses of sodium iodide. This sets free the calcium ions, hastens the elimination of the excess of lime, and lessens the viscosity of the blood. Strychnine is useful and to a less extent atropine, but I think nitroglycerine and the nitrites are injurious.

Diseases of the heart most frequently arise from causes acting on the periphery, and this is more especially true of chronic degenerative lesions; a knowledge of the circulation to be of any therapeutic value must include every part of the circuit, but this would involve too great a survey for the present occasion. There are some who hold that you cannot set back the hands of time, but I am of opinion that you can often do so most effectively, and when this is impossible you should as long as possible prevent the clock from running down, and in order to do so you should know something about the mechanism of your ticker. The heart has a great advantage over any mechanical contrivance, as it is a self regulating and self repairing pump. As a rule, the heart will take care of itself without any serious attention from the physician, if you only preserve a healthy aorta and coronary arteries. This is a comparatively simple matter with a slight mathematical knowledge, but as the aorta and the portions of the coronary arteries, which are not imbedded in the cardiac muscle, are often subjected to great strain from the peripheral resistance and the force of the left ventricle, it is necessary to have a knowledge of the work of the heart. The work can be readily calculated from the following formula:

$$W = wR + \frac{wV^2}{2G}$$

Where W represents the work of the left ventricle, w the weight of the blood, and R the resistance.

Starling sets down the weight of blood expelled at each systole of the left ventricle as 80 grams, the resistance at 180 mm. of mercury, and the velocity at the root of the aorta as 500 mm. in the second; on this basis of calculation he reckons the first part of the formula at 102 gram meters, and the second at 0.64 gram meter. Although I am not prepared to accept his estimate of the

weight of the blood, the resistance, or the velocity as normal standards, the whole of these factors are constantly varying in different individuals, and even in the same individual, yet they fairly represent the relative distribution of the work of a normal ventricle. In a healthy elastic aorta nearly the whole of the work of the ventricle expended in its systole is stored up as potential in its elastic walls, and paid out during the ventricular diastole as kinetic energy. It is very easy to infer what an enormous waste of energy takes place when the aorta has lost its elasticity; and when the heart begins to fail it is apt to go down with a run.

If heart specialists would only leave the heart alone and devote their attention to the circulation in the arterioles and capillaries, they might avert many a catastrophe which they are constantly hurrying on with digitalis and their cardiac tonics. I don't think that I have prescribed digitalis to more than a score of patients this year, and the patients have got on very well without it. When an old jade is struggling up the hill it is much better to lighten the load than to apply the whip, unless you think the load of more importance than the jade.

Professor Starling, in my opinion, places too high a value on the work of an ordinary healthy heart when he sets down the resistance at 180 mm. of mercury. In disease there is often a greater resistance than this, but in health 150 mm. of mercury is too high for even the systolic pressure, and the resistance must be always less, and, as a matter of fact, it is usually considerably less than the diastolic pressure, otherwise the blood would come to a standstill in all the large arteries during the second half of the ventricular diastole. In my opinion, with a healthy heart and vessels, there should be almost as great a difference between the resistance and the diastolic pressure as between the diastolic and systolic pressures. The kind of circulation which I would suppose that Methuselah possessed would be a systolic pressure of 120, diastolic of 100, and a resistance of 80 mm. of mercury, and that each contraction of his left ventricle discharged 80 grams of blood. If you reckon mercury as thirteen times heavier than blood this would give 62.4 gram meters for each stroke of the left ventricle plus the energy used in producing velocity, with which we shall deal later. In the days of Methuselah there was not much struggle for existence, there were fewer invisible foes, and he could easily subsist on the fruits of the earth; but nowadays he would probably have been hustled out of existence long before he reached the end of his first century. What we should do is to try and keep our circulation as perfect as circumstances will permit, and the most perfect

circulation is one with a moderately low systolic pressure, a relatively high diastolic pressure and a moderate resistance—a gentle slope in the pressure gradient from the root of the aorta to the small arteries and arterioles. This does not impair the elasticity of the aorta and its main branches, and the nutrition of the heart can be maintained to a very old age.

In disease there is a great variation in the systolic and diastolic pressures, and in the resistance. When there is a great disparity between the systolic and diastolic pressures the aorta is losing its elasticity, and I have shown that when the difference is 40 mm. of mercury or more it is high time to be thinking about repairs. When you get a high diastolic pressure—say of 180 or 200 mm. of mercury or more in the aorta and its main branches—there is no period of repose for the vessels, but merely periods of greater or less strain; there is interference with the circulation in the nutritive vessels, the *vasa vasorum*, irritative and proliferative changes occur in the sub-endothelial layer of the intima, atheromatous and perhaps calcareous degeneration follow, and the elasticity of the aorta becomes impaired. Oskar Klotz says that all the aortas examined by him from persons over 25 years of age showed more or less calcareous change in the aortic wall. The coronary arteries, especially the first portions of them which are not imbedded in the cardiac muscles, are subjected to this high diastolic strain, and, consequently, early undergo degenerative changes. In proportion to the loss of elasticity in the aorta the energy of the heart is not stored up, and, with this loss in the conservation of energy, the heart has got more work to do in order to carry on the circulation, the quantity of blood and the diastolic tension within the heart increase, there is a greater amount thrown out at each stroke, a greater disparity arises between the systolic and diastolic pressures, the pressure gradient becomes more steep, there is a longitudinal straining of the aorta, the greater curvature of the arch is stretched and you may get an aneurismally dilated aorta; this question of storage is an important element not only in treatment, but also in prognosis, and for this reason aortic regurgitation occurring early in life from a rheumatic lesion where the aorta is fairly healthy is, *cæteris paribus*, very much less serious than a similar lesion secondary to degeneration of the aorta.

My observation on steep pressure gradients producing longitudinal straining have been corroborated by some valuable experiments by Professor MacWilliam on sections of excised arteries. He found that when he applied internal pressure to a contracted artery the

stress was thrown on the circular fibers, but when the artery was relaxed the pressure caused longitudinal straining.

THE VELOCITY OF THE BLOOD

I have referred to the velocity of the blood and the comparatively small addition which it makes to the work of the heart. As I have on several previous occasions fully dealt with the subject, I shall now only refer to its salient features. In my opinion, physiologists place too low an estimate on the velocity of the blood in the large arteries, in the capillaries and in the veins, though, no doubt, their conclusions are based on many careful experiments, but experiments very difficult to carry out, and very liable to great fallacies, as they are conducted under very unnatural conditions. Chauveau found that the velocity in the carotid artery of the horse reached 520 mm. a second during systole, while at the time of the dicrotic wave the velocity sank to 220 mm. a second, and in diastole to 150 mm. a second. In the human aorta the mean velocity has been reckoned at 380 mm. a second, and Professor Starling sets down the velocity at the root of the aorta at 500 mm. a second, which would be the maximum, as there is a gradual fall in the velocity with the fall in the pressure gradient. It is, no doubt, very difficult or impossible to estimate accurately the velocity of the blood in the human or in any other aorta, as the velocity is directly as the cardiac energy, and inversely as the resistance to the outflow, the sectional area, the friction and viscosity of the blood. No doubt the sectional areas of different aortas vary, but so also do the size of the heart and the amount expelled at each stroke, so that the aorta is always distended by each systole and kept full between the beats. In a large, smooth vessel like the aorta the friction and viscosity can be left out of account. In free aortic regurgitation and in inelastic aortas the onward velocity chiefly occurs during ventricular systole, but physiologists, in determining a normal standard, deal with healthy hearts and aortas.

My method of estimating the velocity of the blood in the aorta and large arteries depends on the law by which you calculate velocity of projectiles and falling bodies, and is determined by the fall in the pressure gradient. It can be applied in the case of any individual without the loss of a single drop of blood, and is, in my opinion, more accurate than any physiological method. I have said that the velocity is directly as the energy of the heart and inversely as the resistance to the outflow. Now, the energy is fairly represented by the height of the systolic pressure, while we have seen that the resistance is considerably less than the diastolic pres-

sure. As the semilunar valves open the blood has acquired its velocity head, and then the actual velocity depends on the energy or effective head minus the resistance to the outflow. The velocity between any two points depends not on the systolic pressure, but on the difference between the pressures. In a healthy aorta the energy is rapidly stored up in the elastic walls during ventricular systole, and paid out during ventricular diastole, thus making the pressure and velocity more or less uniform; the pressure gradient is a gentle slope, and the velocity is almost uniform. We know that the diastolic pressure must be always greater than the resistance, if the blood be moving on, and, therefore, if we take the diastolic pressure as the lower end of the gradient, and the systolic pressure as the upper end, we must be underestimating the velocity. In order to arrive at a fairly accurate mean velocity in each individual case, I knock 20 mm. off the systolic pressure for the upper end of the gradient, and 20 mm. off the diastolic pressure for the resistance.

In the following formula h represents the height of the systolic pressure *minus* 20 mm. and h^1 the diastolic pressure *minus* 20 mm., and mercury is reckoned as 13 times heavier than blood.

Velocity, $v = \sqrt{2gh} - \sqrt{2gh^1}$, therefore, in the supposed case of Methuselah, where the upper end of the gradient would be $120 - 20 = 100$, and the resistance $100 - 20 = 80$ mm. of mercury, you get $\sqrt{2 \times 9800 \times 100 \times 1.3} - \sqrt{2 \times 9800 \times 80 \times 1.3} = 533$ mm. per second, mean velocity.

On the other hand, if you take a very inelastic aorta with a systolic pressure of $270 - 20$, and a diastolic of $170 - 20$ mm. of mercury, you get $\sqrt{2 \times 9800 \times 250 \times 1.3} - \sqrt{2 \times 9800 \times 150 \times 1.3} = 1799$ mm. per second, mean velocity.

You can thus calculate the velocity in any given case, but I think I have said enough to show you the great necessity of maintaining a healthy elastic aorta, which is best accomplished by keeping a low systolic and a relatively high diastolic pressure, and a moderate resistance. A healthy elastic aorta will stand a good deal of intermittent stretching and be nothing the worse for it; it is the long continued strain which works the mischief. In the long continued strain from high systolic and diastolic pressures, such as occurs in chronic granular kidneys, the aorta becomes very atheromatous and calcareous, but not necessarily dilated, whereas, in those large dilated and hypertrophied hearts in which there is a great quantity of blood discharged at each systole and a rapid fall in the pressure gradient, the aorta becomes dilated and elongated.

In some of these big hearts and aortas there is no conservation of energy, and the waste of force is enormous; the output is increased, the velocity is increased, and longitudinal straining—especially along the greater curvature of the arch of the aorta—takes place. In response to this great demand for work, the heart goes on hypertrophying so long as its nutrition is maintained, but the coronary arteries are usually more or less involved, and, with the loss of elasticity in the aorta, the blood supply is not sufficiently maintained in the coronaries, and failure rapidly takes place. When the velocity of the blood in the aorta is very high you get a marked recoil of the heart at the end of systole, and negative and positive waves are set up in the circulation which obstruct one another. When failure begins to set in, you may find the force of the big, powerful organ, which shakes the whole chest and even the bed on which the patient lies, only poorly represented at the periphery. In such cases the storage is defective, the pressure and the velocity are more or less intermittent and the waste of energy is enormous.

On many occasions I have shown how to calculate the velocity of the blood in the capillaries and veins with the aid of a stop watch, and I shall not deal with this matter now. I think I have said enough to show that at least the preventive treatment of heart disease is a comparatively simple matter, when you know how. You do not require an electrocardiograph or other elaborate appliances, except to impress your patients with your own importance.

TWO CASES OF HOURGLASS STOMACH RESULTING FROM INDURATED SADDLE ULCERS OF THE LESSER CURVATURE*

BY J. BION BOGART, A.M., M.D., F.A.C.S.

Attending Surgeon, Kings County, Methodist Episcopal and Jewish Hospitals,

Brooklyn—New York

CASE I—History: P. B., aged 48, widow, nativity Sweden; admitted October 21, 1913.

Chief Complaint: Pain in the abdomen and back; vomiting.

Present Illness: The present illness began gradually about 13 years ago, when the patient states that she had shortness of breath and a heavy sensation in the stomach, constipation and belching of gas. Following this she had attacks of vomiting. She was treated in this hospital for 15 days. She was then discharged and was apparently well, except for an occasional attack of "biliousness," for about 10 years. About one year ago she had another attack similar to the first, accompanied by severe cough. She was

*Surgical clinic held at the Kings County Hospital, October 30, 1913.

then treated in the Cumberland Street Hospital for about 2 weeks. The present attack began 2 months ago, when she commenced to lose her appetite. Since then she has been troubled with "gas on the stomach" and constipation. For the last 3 weeks she has had pain in the epigastrium and lower part of the back. It does not radiate to the shoulder. The pain comes on about one half hour after eating. It is relieved by eating. For the past 3 weeks she has vomited everything taken in a few minutes. The vomitus consists mostly of "mucus." The patient belches gas almost continuously. Pain is relieved by vomiting and belching of gas. The vomitus has apparently never contained blood. There is no history of jaundice. Patient has lost about 10 pounds in three months.

Family History: Father living and well. Cause of death of mother not known. One brother and one sister living and well. No history of cancer or tuberculosis. Husband died of Bright's disease 17 years ago. No children. One miscarriage at four months.

Previous History: Measles in childhood; pleurisy 16 years ago; always well since then except for stomach trouble. Menstruation began at 16; always regular, lasting 3 to 4 days; slight bearing down pain at each menstruation; last menstruation 3 years ago; no vaginal discharge; no history of sore throat or skin eruption.

Physical Examination: A very poorly nourished woman; tongue coated; Riggs' disease of the lower jaw, teeth few and poor, absent in upper jaw; lips and mucous membrane of good color; pupils equal and react promptly to light and accommodation; post cervical glands palpable; left axillary glands markedly enlarged. Epitrochlears not palpable.

Chest: Extremely long and narrow; expansion good; equal on both sides; hyperresonance over the entire chest; breath sounds of good character; many fine rales over the entire chest anteriorly, but more in the left lower lobe.

Heart: Action rapid; sounds of good character; no murmurs.

Abdomen: Retracted; marked tenderness in the epigastrium; maximum point in the midline; *no mass palpated*; liver, spleen and kidneys not palpable. Rigidity of abdomen interferes with palpation.

Extremities: Patella reflexes sluggish; suspicious Babinski on the left side; Inguinal glands palpable, but small; no point of tenderness along the spine.

Blood pressure: systolic, 120; diastolic, 100.

October 22, 1913: Patient vomited several times; vomitus contains a great deal of mucus.

October 24th: Six ounces of a test breakfast removed; many particles of well divided bread; slightly pungent in odor; a great deal of mucus present; no blood. Patient on rectal feeding.

October 28th: Pain starts in the right flank and spreads over the abdomen and small of the back; maximum point of tenderness below the left costal borders. Stomach washed out with 2 quarts of saline, all of which was recovered.

Analyses of Stomach Contents: Test Meals

October 22d—Total acidity.	40
Free hydrochloric acid.	16
Combined " "	10
Organic acid and acid salts.	14

October 28th—Total acidity,	48
Free hydrochloric acid,	18
Combined “ “	12
Organic acid and acid salts,	18

October 22d— <i>Urinalysis</i> :	
Specific gravity,	1032
Amber in color.	
Acid reaction.	
Albumin,	0
Sugar,	0

October 25th—Stools negative for blood.

October 30th— <i>Blood Count</i> :	
Red blood cells,	4,160,000
White “ “	10,800
Polys.,	87
Transitionals,	2
Large monos.,	7
Small “	4
Hemoglobin,	75 per cent.

The Wasserman test was negative.

ANALYSIS OF SYMPTOMS AND PHYSICAL SIGNS: DIFFERENTIAL DIAGNOSIS

This is primarily a history of ulcer followed, after many years, by symptoms of obstruction, at first partial, but now practically complete.

The diagnosis of primary ulcer is logically deduced from the recurrence of stomach symptoms covering a period of thirteen years, during which the symptoms were of sufficient severity to induce the patient to seek hospital treatment on two occasions preceding the present. Periods of partial or complete remission of symptoms are characteristic of ulcer, recurrences being more common during the spring and fall.

The questions for us now to decide are : (1) The Cause of the Obstruction; and (2) Its Location.

Are we still dealing with contraction of scar tissue and perigastric adhesions from simple ulcer, or has cancer, as frequently happens, been engrafted upon the ulcer.

All of the symptoms and physical signs, I think, are compatible with the diagnosis of simple ulcer. While pronounced anemia and emaciation are present, there is, as yet, no definite cachexia. The stomach analyses distinctly contraindicate cancer.

We must not, however, forget that the existence of cancer of the stomach is perfectly compatible with this picture, since we rarely have cachexia until the disease is far advanced. The Mayos con-

sider cancer of the stomach characterized by palpable, movable tumor with obstruction among the most favorable for operation. Stomach analyses are proverbially unreliable in the diagnosis of cancer.

The decision between ulcer and cancer must, therefore, in my judgment, await the exploration.

Where is the obstruction? It is not at the cardia, as in that case the patient would not be able to take or vomit such large quantities of fluid. What reason have we for thinking that it may be anywhere but in the pylorus? All fluids introduced by the stomach tube have been recovered. This test, if reliable, would indicate that we were dealing with a case of pyloric obstruction. We have not resorted to air inflation, which would probably have been more useful, because we now have a more reliable test—the X-ray—which is also safer.



FIG. 1

INTERPRETATION OF X-RAY PLATES

Here is a skiagraph (figure 1) taken immediately after the ingestion of bismuth. It shows what appears to be a good sized stomach hanging vertically, entirely to the left of the spinal column. Note, on the right of the shadow, what one might mistake for the pylorus, but below it there is a little string of bismuth leading to a second small shadow about an inch below.

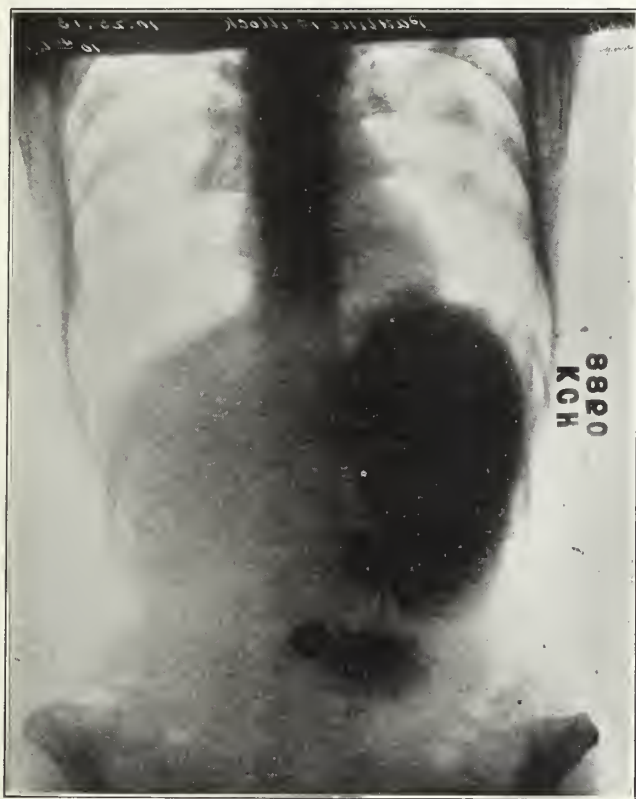


FIG. 2

In a second skiagraph (figure 2), made thirty minutes after the first, the upper shadow is smaller, while that below is larger.

Four hours after its ingestion, there is as much bismuth in the lower as in the upper receptacle (figure 3), and the two have approached one another. Bismuth is now seen to be passing out of the right end of the lower receptacle and disseminating through the small intestines. It is now clear that we are looking at an Hourglass or Segmented Stomach of unusual shape. In the first skiagraph

(figure 1) practically all the bismuth is in the cardiac portion, while in the third (figure 3) what still remains in the stomach is about equally divided between the cardiac and pyloric portions.



FIG. 3

Twentyfour hours after the meal (figure 4) a small portion of the bismuth still remains in the cardiac portion of the stomach. A larger residue remains in the pyloric portion while the bulk of the bismuth has passed into the colon, which is seen to be entirely below the level of the iliac crests, its transverse portion occupying the true pelvis. Thus, we have, in addition to an Hourglass Stomach, a pronounced ptosis of the entire gastrointestinal tract, with stasis in both segments of the stomach.

After fortyeight hours (figure 5) there is still a considerable quantity of bismuth in the pyloric segment, which, however, appears to be actively emptying itself. There are still traces of bismuth in the cardiac portion, notably in two areas, one upon the stomach

wall and the other at the site of what in the first skiagraph (figure 1) might have been mistaken for the pyloric antrum, if no later observations had been made. The persistence of this shadow, after the otherwise complete emptying of the cardiac segment, leads me to suspect that there has been a perforation of the stomach at this point, leaving a pocket where the viscus has become adherent.

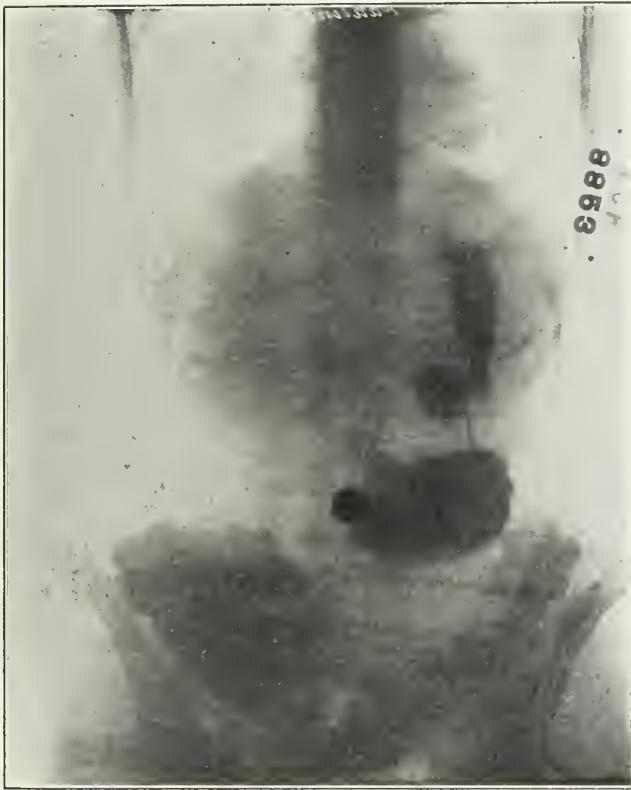


FIG. 4

This seems to confirm our diagnosis of primary ulcer and to locate the ulceration with subsequent obstruction at the lesser curvature.

You will also note that in the entire series of skiagraphs the position of this area has not materially changed.

This would indicate that we may expect to find firm adhesions at and surrounding the point of obstruction.

As the first patient is not quite ready, I shall read the history and show you a skiagraph of another type of hourglass stomach,

which I operated upon two weeks ago at the Methodist Episcopal Hospital.

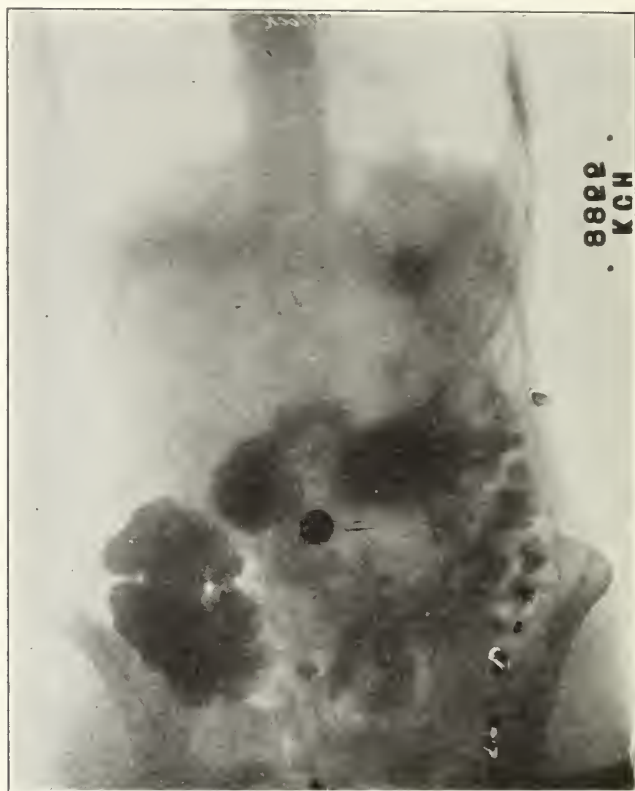


FIG. 5

CASE II—M. S., single, female, cook, aged 52; born in Ireland, was admitted to the M. E. Hospital, September 21, 1913.

Chief Complaints: (1) Indigestion; (2) Pain in the "stomach."

Present Illness: She has suffered from the above symptoms for many years, but they have been more severe during the last three years. Half an hour after meals her stomach feels distended and she suffers from flatulency with belching of gas and "waterbrash."

The epigastric pain is knife like and radiates to the back beneath the shoulder blade. This pain comes on an hour after meals and continues for several hours. Lately, the pain has been almost constant. It is often relieved by drinking hot milk. Appetite poor. The ingestion of food soon causes a feeling of nausea, but vomiting has never been a prominent symptom. She eats irregularly and has been a great tea drinker. She is now obliged to take food frequently in small quantities, as a full meal always increases her distress. Her bowels are moved only by cathartics.

She has never been jaundiced and has never, to her knowledge, vomited blood or passed "tarry" stools.

She has lost seventeen and a half pounds in the last year and a half.

Her menstrual and previous history are irrelevant.

Her urine is normal, with the exception of a trace of albumen.

No test meal was given nor was a blood count made at the hospital.

The Physical Examination is not recorded.

The patient was referred to me by Dr. McGilvary and brought with her an X-ray print of an Hourglass Stomach, which I will now show you. It is, as you see (Fig. 10, page 471), a typical hourglass stomach extending transversely across the abdomen, overlapping the spinal column, in marked contrast with the previous case, in which, as you will recall, the stomach hangs vertically, entirely to the left of the spine. It also differs from the other case in that there is no ptosis of either stomach or intestines.

ANALYSIS OF SYMPTOMS

It is difficult to analyze this case critically in the absence of a more complete history, including a record of blood counts, gastric analyses and the physical examination, as well as a more complete X-ray examination.

This is all the more unfortunate as the operative findings were of unusual interest.

Nevertheless, the long history of "stomach" symptoms characterized by severe epigastric pain, at first after eating, but later almost constant, relieved by taking food and followed by gradual loss in weight, is fairly significant of ulcer, even in the absence of vomiting of "coffee ground" material, "tarry" stools and a record of a high degree of gastric acidity.

The absence of vomiting or other definite symptoms of obstruction, however, would have precluded a diagnosis of hourglass stomach without the aid of the X-ray.

The exploration revealed the presence of a typical chronic, indurated ulcer of the lesser curvature of large size producing, by the contraction of scar tissue, the hourglass stomach so well shown in the skiagraph.

TREATMENT OF HOURGLASS STOMACH

The treatment of hourglass stomach must, in the nature of things, be purely surgical. It constitutes an obstruction to the passage of food through the stomach and, unless the obstruction is promptly relieved, the patient starves.

Various devices, depending upon its nature and cause, have been employed for overcoming the obstruction and facilitating the passage of food into the intestines.

In the infrequent cases where the obstruction is due solely to perigastric adhesions, simple division may be all that is necessary. But, as most cases are due to ulcer, cancer or the ingestion of caustics with resulting contraction from scar tissue, it is usually necessary to resort to some form of gastropasty with or without excision of the affected portion of the stomach. Such procedures are usually combined with gastrojejunostomy to insure more perfect drainage.

In many cases, owing to the extent of the diseased area or density of adhesions, excision is impracticable. Here gastrogastrotomy may be resorted to provided the segments are sufficiently movable to be approximated without tension. Even in such cases a gastrojejunostomy is generally thought advisable to give rest to the stomach and to insure permanent relief in case the former procedure should be found insufficient.

In a few instances double gastrojejunostomy has been done, each segment of the stomach being drained separately.

In hopeless cancer cases, and a few others attended with unusual complications, or where the reduced condition of patient precludes a more prolonged operation, a simple gastrojejunostomy for drainage of the proximal portion is all that can be attempted.

It is hardly necessary to add that it is impossible in any given case to decide fully upon an operative technic in advance of the exploration.

In Case II, upon which I operated two weeks ago, I first excised the ulcer with the intention of closing the wound in the stomach by introducing the sutures in such a manner as to overcome the obstruction; but, owing to the large amount of tissue removed and the dense adhesions, I found this plan impracticable and was glad to be able to close the opening by suturing it in the simplest possible manner without reference to the obstruction. I then undertook to make a posterior gastrojejunostomy, but, after employing sufficient force to tear a good sized hole in the posterior wall of the stomach, I realized that that also was impossible and was obliged to be content with an anterior gastrojejunostomy.

The patient stood the operation well, and, except for a brief attack of vomiting on the following day, which was promptly relieved by lavage, her convalescence was uneventful. She left the hospital, twelve days after operation, in excellent condition.

OPERATION

Case I. Palpation under complete anesthesia failed to reveal the presence of tumor, but, on opening the abdomen through a

median incision above the umbilicus, a hard mass overlapped by the left lobe of the liver was encountered. After separating some adhesions the incision was prolonged downward to facilitate exploration. The skin was then excluded with gauze pads to prevent the iodine on its surface from coming in contact with the peritoneum.

The gallbladder, pancreas and kidneys were not involved in the growth, which was firmly attached to the under surface of the left lobe of the liver. It was evident that there had been a perforation there.

The tumor, which involved principally the posterior wall of the stomach at its lesser curvature, was as large as a good sized orange. It was of irregular shape, hard and nodular. It felt like cancer. It was so firmly attached that excision was impracticable, even if the condition of the patient had admitted so radical a procedure. It was impossible to bring the two segments of the stomach together to do a gastrogastrostomy. In fact, so great was the tension on the posterior layer of the cardiac segment, that, on removing the forceps at the completion of a gastrojejunostomy, the anastomosis at once retracted so far that it was with difficulty recovered for the purpose of anchoring it to the opening in the transverse mesocolon.

In view of the technical difficulties, as well as the danger of angulation of the jejunum, it would have been wiser to have chosen the anterior operation in this case also.

A hypodermoclysis of saline with adrenalin hydrochloride was given during the operation.

POSTOPERATIVE REMARKS

Our preoperative interpretation of the symptoms and physical signs, including the X-ray plates, was remarkably accurate.

We were able to demonstrate an Hourglass Stomach, due primarily to saddle ulcer at the lesser curvature, with perforation and adhesion to the left lobe of the liver.

We also found a tumor, which could not be felt or demonstrated before operation, although the possibility of its existence had not been overlooked. We could not feel this tumor before the abdomen had been opened, even under anesthesia.

The obstruction was not as complete as the symptoms and X-ray examination would have led us to expect, had not experience in similar cases warned us that the inability of the proximal portion to empty itself depends almost as much upon the fixation of the stomach as upon the obstruction. In this case there remained an opening between the two segments as large as one's thumb, while

for all practical purposes, as demonstrated by the X-ray, the obstruction was almost complete.

It may have surprised some of you when I said, during the operation, that, although I thought the tumor on the posterior stomach wall was cancer, I could not answer that question categorically.

It occasionally happens, after such a demonstration as you have seen this morning, where a radical operation is impracticable and the surgeon has been obliged to content himself with a simple drainage operation, the patient, instead of experiencing temporary relief, is cured. In such cases, it is only rational to conclude that there was a mistake in diagnosis. What was supposed to be cancer was nothing more than an enormous inflammatory infiltration about a chronic ulcer. Such errors are more common in the absence of the Wasserman test for Syphilis.

In this case, because of the indurated and nodular character of the tumor, rather than its size, I am inclined toward the diagnosis of cancer, in spite of the absence of metastasis or definite glandular involvement, and those changes in the chemical and microscopical findings in the stomach contents which we usually associate with cancer.

Time will decide the question for us. If this patient survives the operation, improves for a few weeks and then gradually fails and dies within six months, after developing a true cancer cachexia, we shall be fully justified, even in the absence of autopsy, in concluding that she died of cancer.

If, on the other hand, her improvement continues, so that at the end of six months we find her in comparative health, we may safely assume a nonmalignant etiology of her present trouble.

REMARKS BY DR. BOGART NOV. 6, 1913

Those who were present at last week's clinic will recall a difficult gastrojejunostomy, which we did on a case of Hourglass Stomach. On removing the forceps from the anastomosis it was retracted so far into the lesser cavity of the peritoneum that it was with difficulty recovered and anchored to the mesenteric opening. Because of this I had some fear that the jejunum might become angulated.

The patient was in a semistarved condition, having vomited all food and been on rectal feeding for some days before operation.

Owing to the technical difficulties, she was kept under the anesthetic rather longer than usual, and we were obliged to give her a hypodermoclysis with adrenalin on the operating table.

As her circulation was still very poor on reaching the ward she

was at once placed in the Trendelenburg position. When I visited her at the close of the clinic she was regurgitating a large amount of dark brown fluid. I, therefore, ordered her bed lowered and an immediate lavage, which was given in my presence. The irrigating fluid, at first dark brown, soon returned tinged with bright red blood.

After this she vomited about once in each twentyfour hours, and was lavaged at regular intervals, large quantities of dark brown fluid containing much mucus being recovered on each occasion.

The Murphy drip, alternating later with rectal alimentation, was begun immediately after operation.

On account of the persistence of the vomiting, four days after operation I determined to test the function of the gastrojejunostomy, intending, in case the result was not satisfactory, to reopen the abdomen and make a second drainage opening by anastomosing the jejunum at a lower point in its course with the anterior



FIG. 6

wall of the cardiac segment of the stomach without disturbing the original operation.

The result of the examination was so satisfactory that no further operation was found necessary. Not only did the bismuth pass freely through the gastrojejunostomy, but, almost immediately thereafter, the patient, for the first time, complained of hunger, was given food and has not vomited since.

This skiagraph (figure 6), made immediately after the bismuth meal, four days after operation, shows the bismuth passing freely through the gastrojejunostomy. Note the difference in the shape of the cardiac segment since the operation.*

The second skiagraph, four hours later (figure 7), shows the



FIG. 7

*The transposition of the viscera in the post-operative skiagraphs is due to the fact that in the one set the patient was lying prone while in the other set she was lying supine.

stomach more than half empty, while a considerable portion of the bismuth has already reached the right side of the colon.

The chief interest in the twentyfour hour picture (figure 8) lies in the fact that in it we see clearly two streams of bismuth flowing out of the stomach, the larger, on the left, through the gastro-jejunosotomy; and the smaller, nearer the spine, through the hour-glass constriction. Most of the bismuth is now in the colon, but there is still stasis in the stomach, which is undoubtedly due to its



FIG. 8

immobility. We do not, however, observe stasis in the pyloric segment, which was so marked a feature of the twentyfour hour picture before operation (figure 4). This is probably because so relatively small a quantity of the bismuth now escapes the gastro-jejunosotomy and reaches the pylorus through the constriction.

At this point the stomach was lavaged and found to be prac-

tically empty, although the skiagraph indicated the persistence of a considerable quantity of bismuth. Immediately after the lavage the patient complained of hunger and was given cereal, which she ate with evident relish.

The fortyeight hour picture (figure 9) shows some bismuth still sticking to the walls of the stomach.



FIG. 9

The immediate success of our operation has thus been demonstrated pictorially by a bismuth meal administered four days later, while, immediately thereafter, the patient, by taking food freely and retaining it, has confirmed the X-ray findings.

Query? Was this a coincidence or did the heavy bismuth emulsion have something to do with the opening up of the gastro-jejunosomy and so facilitating the restoration of the functions of the digestive tract?

REMARKS BY DR. BOGART NOV. 20, 1913

I have the pleasure of showing you again the patient on whom we did a gastrojejunostomy for Hourglass Stomach three weeks ago this morning. Since the bismuth meal, four days after operation, the result of which was reported to you at our clinic two weeks ago, she has had no further trouble. Her tongue is clean and



FIG. 10

her appetite and digestion good. She is now on a general diet and has been sleeping well the past few nights. She had never had any fever and the high pulse rate—160—immediately after operation, has fallen gradually, until it is now 90-100.

She has gained in weight and is looking and feeling much better than before operation.

NOTE I. On August 23, 1914, more than ten months after the operation, my assistant, Dr. Joseph Tenopyr, noted that this patient was in good health. Her weight has increased from eighty nine pounds, when she left the hospital, to one hundred and eight pounds. This gain has been progressive. She has a good appetite and is looking and feeling well. The abdominal scar is firm and no tumor can be felt. There are no enlarged glands anywhere.

I think it is safe, therefore, to conclude that the large, nodular, indurated mass found in the posterior wall of the stomach at operation was inflammatory and not cancer.

NOTE II. In reference to Case II, my assistant, Dr. Royale H. Fowler, noted on August 18, 1914, eleven months after operation, that the patient feels well and has no pain or other gastric symptoms; but her appetite is still poor and she has lost two pounds since the operation. Her bowels are still constipated.

Dr. John G. Williams, after an X-ray examination of this patient, August 22, 1914, states:

"As you will see from the prints, the stomach opening is sufficient and the stomach seems to be emptying itself in a normal way."

THE BULGARIA BACILLUS IS THE PHILOSOPHER'S STONE OF THE INTESTINES

By LEONARD KEENE HIRSHBERG, A.B., M.A., M.D.

(Johns Hopkins)

To fight fire with fire is a time honored method among pioneers. Even the all too wide generalization of Hahnemann, to treat like with like, has 3 tenths of 1 per cent. of truth in it, for are not poisons of a certain nature prevented from working havoc by immunizing the prospective victim with small doses?

Whoever, ten years ago, might have proposed to feed the human race with bacteria—microbes, bacilli, germs, microorganisms, minute parasites, call them how you may—would have been hooted and jeered at as a lunatic. What sane medical man would have proposed to treat diabetes with lactic acid bacilli? Today many properly do so!

Yet that strange stage of affairs has come about, not merely as a discreet suggestion, but as universal medical practice. Indeed, doctors nonchalantly prescribe nowadays that you shall swallow germs, far more frequently than dentists extract teeth.

The discovery by Professor Elie Metchnikoff, of the Pasteur Institute, that certain bacilli, rendered harmless by race, inheritance, or some condition of servitude, act as conquering heroes against many fatal and malignant bacteria, was the origin of this wonderful use of man's enemies, to serve him.

It is not unusual to find that the people who are most venomous, inimical, scandal tongued, and hateful, have unwillingly and unknowingly rendered you the most important services.

Thus it has proved with Professor Metchnikoff's lactic acid bacilli. Although some few observers had reported sporadic cures of a few alimentary disorders by the guzzling of sour milk and

of buttermilk, the all wise doctors and malaria experts turned their noses sniffingly heavenward and explained the happy results as "coincidences," "accidents," or some other "unseen" cause.

Now it is known and admitted by all these supercilious sceptics that the lactic acid bacilli, particularly the "race" or strain of germs whose "parents" originated in the bacterial Garden of Eden, the sour milk of Bulgaria, not only devour the dangerous intestinal bacteria of man, but prevent dysentery germs, cholera infantum microbes, diarrheal bacteria, colitis bacilli, and a whole host of human microscopic enemies from living and doing harm in man's intestines.

In other words, the science of bacteriology has made a cat's paw out of Bulgaria bacilli, to pull human health from many an iniquitous fire.

A veritable Roman phalanx of investigators have found that these *Bacilli lactis bulgaricus*—as they are technically called—manufacture over three per cent. of a harmless, antiseptic acid which is not only beneficial to human digestion, but notably destructive to germs of decay, to the soaps and alkalis which injure the alimentary canal and to most disease producing parasites.

Dr. Ralph Oakley Clock, of New York, has recently reported a large number of vicious, usually fatal, instances of cholera infantum, dysenteries, diarrheas, and other summer complaints in infants, saved by feeding them Bulgaria bacilli dried and mixed with milk sugar in tablet form.

Through Mr. Henry Hynson and the Johns Hopkins Hospital, the ancestors of these Bulgaria germs were obtained from Professor Metchnikoff at the Pasteur Institute. They are now available for everybody, and so are Dr. Clock's dramatic "cures" of the most severe types of infantile intestinal complaints.

Dr. Clock's conclusions, which have also been duplicated in my own little patients, as well as in victims of mucous colitis in adults, should be at least borne in mind by the profession.

The results of the administration of bacillus bulgaricus in the vomiting and diarrheas of babies have been unusually successful. These lactic acid producing bacilli survive and continue alive in the intestine for a long time after administration and multiply there, producing large amounts of lactic acid, which obstructs the growth of harmful microorganisms, and thus prevents certain diseases caused by the absorption of the products of putrefaction and butyric fermentation. Dr. J. Wallace Beveridge, of New York, says that in the treatment of glycosurias and diabetes the use of tablets of

Bacillus bulgaricus is far superior to that of opium, and offers the only rational internal therapy really of value.

The remarkable results obtained by Prof. Clock in the vomiting and diarrheas of babies by the administration of the *bacillus lactis bulgaricus* in tablet form led Dr. Louis H. Schwartz to try the treatment in a series of cases that came under his care during the months of July and August of the present year. There were fiftyfive cases in all. The home conditions of these infants were for the most part wretched, as over ninety per cent. of the parents were very poor, ignorant, and superstitious. The cases varied in severity from moderate degrees of infection to the most grave. In a few of the cases the stools were blood stained at the time treatment was begun. The diarrheas had been present anywhere from one day up to a month or more. From three to ten lactic bacillary tablets a day were given to each baby, depending on the gravity of the illness.

The results obtained were as follows: Fortythree of the children gained in weight outright; two lost; three gained and then later lost, and in seven there was no change of weight recorded. Of the fortythree whose weight increased, twentythree started with a loss. The babies were weighed once each week, whenever possible. There were no deaths. In all cases the temperature came down to the normal within one to three days, except in a few where there was an associated condition, such as a bronchopneumonia. Within two or three days after the tablets were used the stools became yellowish or brown, well formed, free from curds, mucus, and blood. The number of stools sometimes decreased and sometimes remained unchanged. To the latter children, bismuth subnitrate in tablet form was given, in addition to the lactic bacillary tablets, with very marked decrease in the frequency of the passages. The tablets seemed to have but slight influence on the vomiting.

While it is not advisable to draw broad general conclusions from so small a number of cases, treated as these were under very trying and unsatisfactory conditions, nevertheless, it seems that the administration of the *bacillus lactis bulgaricus* is a distinct advance in the therapeutics of gastroenteritis of infants.

The gain in weight, in spite of the number of stools.

The rapid change in color of the stools to yellow.

The rapid subsidence of fever.

Absence of mucous blood from the stools at the end of fortyeight hours.

The fact that the hygienic surroundings of the patients and the degree of intelligence of the mothers had no influence on the results.

A starvation diet, accompanied by purgation, is productive of loss of weight and strength, and serves to prolong the course of the disease; and, further, such a procedure can no longer be advanced as a rational method of treating infantile diarrhea.

The digestive powers in infantile intestinal conditions, even when associated with fever, are not so impaired as to prevent the digestion and assimilation of a milk diet.

In severe cases best results are obtained by administering a large number of the tablets during the first two or three days of the treatment. As many as fortytwo tablets in twentyfour hours have been given to very young babies without untoward effects.

The implantation method of treatment has progressed beyond the experimental stage, and the results of its use can no longer be questioned or disputed. This treatment has been proved of practical clinical and scientific value, and its simplicity should appeal to every practitioner.

In order to secure the best results, in using the implantation treatment, a pure culture must be employed, otherwise results will be less happy.

Dr. Sinclair reports clinical experiences with the bacillus bulgaricus in thirtytwo cases of acute gastroenteritis and ileocolitis, occurring for the most part in patients severely ill and poorly nourished, admitted to hospital during the summer of 1912. The ages ranged from seventeen days to two years, and there were twenty cases of gastroenteritis and twelve of ileocolitis. Of the twenty cases of gastroenteritis, seventeen were of the severe and two of the toxic type, and of the twelve patients with ileocolitis, all but four were desperately ill, six of the eleven deaths occurring in the whole series of thirtytwo being due to ileocolitis, with or without complications. The patients presenting mild cases of gastroenteritis had been ill for a fortnight, and the duration of the severe cases varied from three days to three months before treatment with the bacillus bulgaricus was begun. Only eight of the seventeen severe cases received this treatment before the end of the third week.

The putrefactive process was cleared up and the stools became normal in the gastroenteritis cases, on an average within five days from the institution of the treatment. In one case the stools became green two days after the administration of *Bacillus bulgaricus* was stopped, while in another the stools were free from mucus after treatment was started, although the baby had suffered from chronic gastroenteritis for three months. In seven of the twelve cases of ileocolitis the stools became normal within nine days on an average, and of the five showing no improvement two were only two days

under treatment before death. All the patients recovering had gained weight upon their discharge.

The babies were fed either naturally or artificially, as the needs of each indicated, and most were put upon either water, tea, barley water, albumin water, 5 per cent dextromaltose solution, whey, buttermilk, or modified, milk mixtures. In addition to the administration of the *bacillus lactis bulgaricus* an initial dose of castor oil was given, with subsequent colon irrigation or gastric lavage, as occasion demanded. Brandy and champagne were given, if indicated, as were also hot or cold packs, adrenalin, serum, tannalbin starch and laudanum enemata, and bismuth subnitrate in only two cases. Considering the severity of the cases, the general condition of the majority of these patients on admission, and the length of time they had been ill before receiving treatment, the *bacillus lactis bulgaricus* was of distinct value in controlling the putrefactive process in the intestine and in establishing a normal condition of the stools. Of the twenty cases of gastroenteritis only five proved fatal.

PHYLACOGEN IN THE TREATMENT OF DIABETIC GANGRENE

BY M. A. RICHTER, M.D.

Buffalo, N. Y.

The phylacogens, as originated by Dr. A. F. Schafer, cover a broad field of therapeutic applicability. With the increase in length of time since they were presented to the medical profession, their therapeutic range is increasing quite extensively, and they are displaying great efficiency in diseases other than those formerly believed to be caused by infection. As an example of this we might quote asthma and hay fever. Other diseases are from time to time yielding to the administration of phylacogen; and it is for this reason that I wish to present a single case of diabetic gangrene treated with mixed infection phylacogen.

This phylacogen is intended for the treatment of mixed infections of various kinds in which a specific organism cannot be said to predominate. There is sufficient evidence to show that it is very successful in this class of cases, but just why it should successfully influence a case of diabetic gangrene is not so easy to explain, although it is not unreasonable to suppose that many of the deleterious effects in this condition are due to coincident infection.

Mrs. H., aged 50. Private case. Diagnosis: Diabetic gangrene. History: The patient had suffered from diabetes mellitus for a

number of years. Two years previously the middle toe of the right foot was amputated for diabetic gangrene. There was no return of the process until March 1st, 1912, when the patient developed a gangrenous spot the size of a quarter on the left heel. This gave every indication of extending and causing considerable trouble when the administration of mixed infection phylacogen was decided upon. This preparation was given as follows:

March 27,	Mixed Infection Phylacogen	2 Cc.,	subcutaneously	
" 28,	" " "	2 Cc.,	"	"
" 29,	" " "	2 Cc.,	"	"
" 30,	" " "	2 Cc.,	"	"
April 1,	" " "	2 Cc.,	"	"
" 2,	" " "	2 Cc.,	"	"
" 3,	" " "	2 Cc.,	"	"
" 4,	" " "	2 Cc.,	"	"
" 6,	" " "	5 Cc.,	"	"
" 8,	" " "	5 Cc.,	"	"
" 10,	" " "	5 Cc.,	"	"
" 12,	" " "	5 Cc.,	"	"

On this date the condition had practically healed and the phylacogen was discontinued. On the 26th of April the patient was discharged cured.

Under the influence of the phylacogen the case progressed to a cure more rapidly than under ordinary treatment. The septic condition that might otherwise have proved very serious was successfully controlled, and the repair of the diseased area by the natural processes was not interfered with.

It is true that one case does not prove beyond all doubt the efficiency of a preparation in a given pathologic condition, but, so far as I know, this is the first case of diabetic gangrene reported as treated with phylacogen. Its successful outcome, I trust, will stimulate others to test its therapeutic virtue in similar cases. If, with more extensive experience, it continues to benefit these cases in the same manner as it did the case reported, it will furnish the physician with a successful remedy in a condition which is only too likely to resist any and all forms of treatment.

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JOHN W. WAINWRIGHT, M.D., EDITOR

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JOHN W. WAINWRIGHT, M.D.
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EDITORIALS

INFANT MORTALITY

No subject pertaining to medicine has been more fully discussed in recent years than that of infant mortality. The causes of a high death rate among young children has been pretty thoroughly investigated and certain conclusions have been reached. This is not to say that there is universal agreement, even in the ranks of those who have made a special study of the causes of infant mortality, as to what particular cause bulks most large, but a general view has been arrived at with regard to some of the principal causes. For example, none will deny that proper feeding plays the most prominent rôle in the rearing of the infant, and that proper feeding whenever possible consists in breast feeding. With respect to the kind of feeding most nourishing to an infant when mother's or human milk is not available expert opinion is not unanimous. Some aver that cow's milk should be pasteurized before being offered as food to young children, while others insist that all sterilizing methods of treating milk, including pasteurization, injures to a greater or less extent the nutritive properties of the product. Dried milk has its staunch advocates, and Dr. Eric Pritchard as well as other authorities on the treatment and care of infants have published remarkably good results from this form of feeding. So far as feeding infants is concerned, the statement may be made with emphasis

that breast feeding, whenever feasible, should be practised, and that when this is impossible that the advice should be sought of medical practitioners experienced in other methods of infant feeding. The fact stares us in the face that in all civilized countries the infantile death rate has been greatly decreased within the past few years, and it is evident that this result must be due to some extent to improved methods of feeding.

At the British National Conference on Infant Mortality, held in Liverpool on July 2 and 3, 1914, several excellent papers were read, and in some of these stress was rightly laid upon the point that antenatal hygiene is of the utmost importance in the evolution and development of a healthy race. If an infant is not born healthy or in fairly good health, he or she is greatly handicapped from the first, and if the mother is not in good physical condition at the time of birth the chances of the child are obviously injuriously prejudiced. Therefore, it behooves philanthropists and medical men to see that poor mothers are well cared for whilst pregnant. In an able paper read before the National Conference on Infant Mortality, which took place recently, Dr. Eric Pritchard explained the scope and functions of schools for mothers and showed that much good had already been accomplished in various parts of the world by carrying out the precepts and practice of the late Professor Pierre Budin. In his paper Dr. Pritchard pointed out that the teaching of antenatal hygiene was essential and that mothers required education in the rearing of infants when born. For instance, if infants are breast fed, the feedings must be given at absolutely regular intervals and at not too short intervals; the infants must not sleep in the same beds as their mothers, and they must not be fed more than once at night, preferably not at all. They must not be wrapped up in too many clothes, they must not have stiff binders which impede movement, and when it is added that they must be regularly bathed, regularly aired and regularly exercised, it may almost be claimed that all the canons of good mothercraft have been enumerated.

The keynote of the Liverpool Infant Mortality Conference was that in all grades of society an intelligent interest was being taken in the health of babies, and it may be added that this interest has

been initiated and fostered by the adoption and establishment of schools for mothers and infant consultations in almost all parts of Europe. Infant consultations under the personal supervision of a physician skilled and experienced in the treatment of infants must necessarily be of almost inestimable value. But it must be borne in mind that the man at the helm should be skilful, if the best results are to be forthcoming. Budin said that an Infant Consultation was as good as the man who conducted it, and the saying reads like a sane and reasonable one.

The schools for Mothers and Infant Consultations wherever they have been founded have not only justified their existence but have proved themselves conclusively to be a predominant factor in the checking of infant mortality and in the production of a hardier and stronger race. Mothers, and especially young mothers, but it may be said most mothers are curiously ignorant with regard to the best methods of bringing up infants. They require education in this direction which schools for mothers and infant consultations afford. Such establishments, if they may be so termed, are not sufficiently numerous, and this country in particular has been strangely neglectful of the possibilities of this mode of disseminating knowledge among the mothers of the land. True, it is that in New York City more is being done by its splendidly conducted Board of Health to conserve infant life, and preserve health generally than in any other city. In other American cities the boards of health are doing magnificent service and accomplishing great things and yet there is plenty of room for the establishment of homes for mothers and infant consultations throughout the length and breadth of the continent. When American men and women become assured that Budin's methods have been largely instrumental in decreasing infant mortality in Europe, these methods will be followed in the large American cities. When American men, and especially American women, take up a project they do not do so in a half hearted manner, and therefore it may be expected that when once planted, homes for mothers and infant consultations will take firm root and flourish exceedingly in the kindly soil of this country.

FOODSTUFFS

There seems to be a great variety of opinions regarding the nutritive value of foodstuffs among physicians as well as laymen, notwithstanding the many published scientific studies during recent years. Dietetics is an all important subject, largely regulated by custom and personal tastes regardless of progressive changes in methods and experimental results. Professor Ormsby, quoted by Mendel in the *Medical Record* in an excellent contribution to that journal April 25, 1914, states that scientific methods and accurate investigations show that the transformation of chemical energy into heat and work in the animal body take place according to the same general laws and with the same equivalencies as in our artificial motors and in lifeless matter generally. The great law of conservation of energy rules in the animal mechanism, whether in man, carnivora or herbivora, just as in the engine. The body neither manufactures nor destroys energy. All that it gives out it gets from its food, and all that is supplied in its food is sooner or later recovered in some form. We are, therefore, fully justified in speaking of food as body fuel, and in our studies of its utilization be confident that any food energy which does not reappear in the form of heat or work has not been lost, but has been stored up in the body as chemical energy of muscle, fat, etc., which may later serve to supply food energy to the body.

There are different view points concerning food deficiencies in the chemical dissimilars in proteins, which vary in respect to the proportions of amino acids, which they yield. Gelatin or the chief protein of maize is completely lacking in certain of these nutritive units. Some of the amino acids are indispensable to life; others which are essential for new tissue formation during growth. The question of high and low protein derives, therefore, significance concerning dissimilarity of individual proteins and their unlike nutritive rôle. A physiologically balanced ration must not only take into account the energy value and relative proportions of groups of nutrients, it must supply suitable specific products.

Taking up some more common foods concerning which misconception or bias prevails, Mendel includes glucose. He gives Abel as authority for declaring the nutritive value of glucose as prac-

tically the same as that of other carbohydrates, there being no reason to suppose that when properly made it is not wholesome. Equally vigorous condemnations of cane sugar as well as beet sugar have from time to time appeared in current literature, both medical and lay, all based upon pseudoscience or ignorance. Unfounded discrimination and proscription of red meat have prevailed; the principal offenders being the physician. Such discriminations involving unnecessary expense where it can least be afforded.

The banana has also come in for condemnation as a wholesome food. When ripe and thoroughly masticated, the banana is a delicious and nutritious food for adult or child. Cheese is another staple article of diet, cheap, palatable and wholesome, which can be depended upon to replace other forms of protein foods.

Skim milk is a wholesome source of protein, sugar and other dietary essentials. Acid fruits have been condemned, but the physician should know that citric and malic acids are burned up in the process of metabolism, so that their salts behave like potential alkalis. Grapes, plums, prunes, and cranberries are not metabolizable and thus form exceptions to the apple, orange and lemon in respect to the behavior of their acid component.

Mushrooms are not rich in protein, indeed scarcely approaching the crudest vegetable in food value. Soups and bouillons provoke a flow of digestive juices and should not be neglected in the dietary. The physiologist has succeeded in largely interpreting and correcting our traditional empiricism as regards matters of diet, and it becomes the duty of dieticians and physicians to promulgate the newer knowledge of dietetics.

HOSPITAL WASTE

Waste of food in a hospital is treason to the Government and the subscribers. Those who manage the affairs of the hospital and provide the money do so on the understanding that a proper use is made of the food supplies which are purchased. Food is by no means the only thing that may be wasted. Surgical and medical supplies, as well as instruments and tools, all of which need the most scrupulous care and attention in order to preserve them and get

the most value out of them, are among the things in which serious wastage and loss may occur. But to take food as one example, the world, a great part of which is now engaged in a war of unprecedented disaster and dimensions, will probably have cause to think more of the preciousness of food supplies than it has for many a day. The wickedness and unthrift of waste is obvious. We need skilful buying, careful storage and keeping, proper cooking and serving and efficient supervision of all these. Each of these is really the work of an expert, and knowledge and conscience are equally indispensable. So is a capacity for taking pains. The hospital official who thinks anything too much trouble to do for the hospital should write his or her resignation at once. Strict daily account must be kept of every knife, spoon, fork, cup, plate and other article used in each ward or dining-room. The head nurse must retain all broken articles so that they may be exchanged for new ones. No broken articles should be replaced on any other condition. Type-written or pinto lists of all such articles should be at hand, and the correct number checked off after each meal. Any part of the hospital where a silver fork or spoon occasionally reappears* when the tray under the sink is cleaned should be turned inside out to see what is the matter with it. The best check on waste, especially food waste, is to employ a trustworthy and intelligent person to collect and classify the waste in each department and keep a detailed and perfectly accurate record of it, comparing and checking these returns. For example, take bread. This is the staff of life, the most important of all foods, yet no food is more wastefully handled. Not a crumb of bread need be wasted. In a hospital all crusts and crumbs should be properly utilized and care taken by the nurses to see that thick or thin slices, brown or white bread, fresh or stale bread, or whatever may be preferred by the patient is served, not what will be wasted, because it does not suit the patient. In one of the New York hospitals it was noticed that the waste accounting system showed that one of the kitchens was returning a much larger amount of bread as waste food collected from the returned plates than another. Each of the two kitchens received the same amount of bread per capita. It was found on inquiry that the employees in No. 1 kitchen cut the bread several hours before it was wanted for

the meal and consequently the cut surfaces of the slices dried and the bread was less palatable than in kitchen No. 2. Consequently the large waste of bread. But if it had not been for the account kept of the waste, each article of diet being kept separate, weighed and recorded from day to day, the waste so prevented would never have become known.

Basic dietary allowance tables are the greatest possible help, not only to the steward in buying and supervising food supplies, but to the superintendent, treasurer and other officials, whose duty it is to direct the policy of the hospital and see that it fulfils the hospital ideal.

HELEN MACMURCHY, M.D.

PELLAGRA

Reports on the study of pellagra from various sources continue to appear in current medical literature, but actual knowledge of the etiology remains in obscurity. Much good work has been done in investigations concerning its epidemiology by the Public Health Service, especially by Surgeon C. H. Lavinder and Passed Assistant Surgeon R. M. Grimm, but thus far interpretations which promises a comprehension of the real nature of pellagra are disappointing. The conditions under which these studies have been made are not calculated to give relief to our perplexities. The lack of Governmental and State cooperation in establishing centers and properly equipped institutions for segregating victims of the disease for a collective study should be brought about when under laboratory and institutional study and care by experts, good results are almost sure to follow. It has been shown that a large proportion of the pellagrins are very poor, and forced to live under conditions which lower the body resistance to all diseases; often remote from proper medical attendance, proper food and sanitary surroundings. The etiology of the disease is as obscure as it was years ago; theories have been advanced from various parts of the world and numerous investigations given only to be discarded or accepted for a time with scepticism. No specific remedial agent is known, indeed no drug which promises a cure or even lasting immunity. The most good that can be accomplished is through proper diet, regulated rest and hydrotherapy, coupled with intelligent attention to general

symptomatic treatment. But this is more often than otherwise impossible under the conditions which prevail in the vast majority of cases.

Arsenic in some form enjoys the reputation of being the most beneficial agent known, but Lavinder cautions against the use of this remedy. He thinks that arsenical preparations have many times been used in the treatment of pellagra to the detriment of the patient. He counsels careful judgment in the administration of such a remedy in pellagra, especially atoxyl and salvarsan. Their use without careful deliberation, he declares, is sometimes to invite disaster. To misuse a good remedy and thus jeopardize its worth in demonstrated indicated cases is an offense against common sense.

We repeat that collective investigations to date clearly indicate that institutional segregation under Government or State control, preferably the former, is the only way in which the disease can be controlled. It is therefore hoped that authorities may get together and seek to learn the cause, determine prophylactic and hygienic measures, as well as a proper treatment. Diagnosis should receive close study, for it would seem that many cases escape identification by the average physician. By keeping careful case histories we will soon be able to make certain our scientific deductions.

BRIGHT'S DISEASE AND ITS MORTALITY

Bright's Disease, so called, is a disease of civilization, for it is clearly shown that nephritis and civilization advance together. It has been described as a disease following a too generous diet of rich food, strong drink, sedentary occupations with consequent lack of physical exercise, and mental strain. Climate, declares Dickinson in *Allbutt's System of Medicine*, Vol. IV, has a paramount overruling influence as an etiologic factor. Inflammatory conditions of the kidney are more frequent in temperate climates, as are diseases of the liver in the tropics. Heredity is also a potent factor in the production of nephritis, as is exposure to cold and wet and certain inflammatory conditions. That there has been an extraordinary and constant increase in this disease in late years seems clearly proven by statistics, and yet we should be guarded in quoting statistics for

various reasons, the most obvious being more accurate diagnosis and complete returns, particularly in the present registration area.

There can hardly be a doubt of the influence of stress and consequent strain. We travel at a rapid pace; most of us, especially in the cities, work too much and exercise too little. This coupled with over eating, stimulants, perhaps with lack of sufficient sleep (rest), predisposes to a lack of resistance, and the kidneys suffer, with consequent sclerosis of the blood vessels, which should be regarded in those past fifty as compensatory: physiological rather than pathological.

The increase in mortality from nephritis in ten years has ranged from 132 per cent., the highest, in New York, to 52 per cent., the lowest, in Montana; Chicago had an increase of 47 per cent.; Memphis, 50 per cent.; Richmond, Va., 106 per cent. In the registration area for 1911, the death rate was for the whites, 9.43, for the colored, 17.04; in the cities the rate was 11.27; in the rural sections, 7.50; 82 per cent. of deaths from kidney diseases were in those over 40 years of age.

CHESTNUT TOXEMIA

On account of the alleged epidemic of poisonings and deaths from the eating of chestnuts affected with chestnut blight, an investigation was made by C. Dwight Marsh, Physiologist of the Drug and Poisonous Fluid Investigations Office of the Department of Agriculture at Washington, who reports the result of the examinations in Massachusetts and New Hampshire. These resulted, in fact, in demonstrating that there was no case of poisoning that could properly be attributed to this cause. It is well known that raw chestnuts are not very digestible, and some persons have an idiosyncrasy that may render their taking any quantity of them harmful. Most of the detailed symptoms of the cases reported can be accounted for in this way. Feeding experiments on a monkey, white rats and rabbits were entirely negative as regards any harmful effects so far as the nuts from blighted trees were concerned, and the conclusion was drawn that they were no more harmful than those from healthy trees.

DIGEST OF CURRENT MEDICAL LITERATURE

Clinical Aspect and Medical Management of Arthritis Deformans.—(*Illinois Medical Journal*, 1914, xxv, 14.) F. Billings considers arthritis to be primarily of infectious origin, and, as shown by Rosenow, Payne and Poynton, is usually due to some form of streptococcus. Since the different forms of streptococci are produced, possibly by conditions in the tissues, it is rational to believe that in different people different strains may be grown which cause either endocarditis, acute arthritis, chronic arthritis, etc., as the case may be.

There is much confusion in anatomical classification. Various anatomical changes may be found in the same case, most likely due to the three different sources of the blood supplies of the joint structures, hence, the varieties of pathology in chronic joint disease. He believes the muscular atrophy and contracture is due to a chronic myositis, instead of from nervous influence or as a secondary thing. Sometimes muscles are affected without involvement of the joints, as in the biceps or erector spinae. Histological examination of these muscles shows chronic myositis. Cultures sometimes yield coccal forms of organisms. The secondary cause of the trouble is probably faulty metabolism manifested by general debility, etc., with a protracted illness possibly due to mismanagement in treatment and too much medication. There are, however, some changes which are not understood, where a number of bones have become fused into one mass.

For the above reasons, the author thinks arthritis deformans a clinical entity which is caused by a chronic focal infection, generally in the nose, throat, or mouth, rarely elsewhere. The streptococci found are capable of mutation. This clinical entity may be differentiated from other chronic arthritides by thorough examinations.

The first examination of the patient probably shows arthritis deformans instead of some other chronic joint trouble. This settled, the next step is to discover the source, if possible, and remove it. If there have been frequent attacks of tonsilitis and the tonsils look abnormal, Billings advises their removal; even if no other focus is found, he thinks it is well to remove them anyway. The tissue should be used to make cultures and to obtain autogenous vaccines which are used to give the patient injections. He thinks

stock vaccines and phylacogen are useless. Vaccines should be considered the least important part of the treatment. After removal of the apparent cause, an effort should be made to improve the personal hygiene: general nutrition, nervous balance, variety of food, sunshine, etc., then passive, and later active, motion. Deformities should be corrected by operation if necessary. An attempt was made by the author to use a prepared horse serum, but in a few cases anaphylaxis became so alarming that further attempts were given up. Even in those cases where a cure is not possible, the writer thinks the course of the disease can be checked. The most difficult thing to be overcome is the chronic muscular change; even here, however, autogenous vaccines obtained from local cultures promise better results. The case demands long and careful watching.

Radium Promotes Instead of Checking Cancer.—This is the conclusion which has been forced on Rovsing, *Hospitalstidende*, Copenhagen, July 8, 1914, by his tragic experiences in a number of cases in which small, hitherto indolent and benign, superficial growths were fanned into rapid malignant growth apparently by the exposure to radium. He states that he has been unable to find in the literature any authentic case of an actual cure of a cancer under radium, but the chorus of encouraging reports overcame his first misgivings, and he began to apply radium himself in 1912. His extremely unfavorable experiences made him fear that his technic was at fault, so he took a trip to Heidelberg to study the technic in vogue there, and found that he had been applying it strictly according to rule in every respect, and yet, in many instances, the exposure was followed by the transformation of an indolent growth into a rapidly gnawing cancer, becoming absolutely inoperable in the course of a few days. He gives the details of ten such cases. They were selected for radium treatment on account of the apparently peculiarly favorable conditions for this. In one case a small tumor in the cheek—the recurrence of a carcinoma which had been excised less than three months before—could easily have been removed, but as it seemed to invite radium treatment this was applied for twenty hours. The tumor became in a few days absolutely inoperable, and all were convinced that this was the direct result of the radium exposure, especially as case after case showed this same course.

The growth became intensely painful as a rule after the radium exposure. This was particularly evident in the case of a man of

29, who had been given radium treatment at Omaha for a suspicious lump on his lower lip noticed for two years. After the radium exposure the lump began to grow rapidly, and when it was then excised recurrence rapidly followed. This occurred again after a second operation. The small ulceration in the cicatrix and two slightly enlarge glands under the jaw were then treated with radium. The glands had been thus enlarged for two years without change, but after the last radium exposure the whole region at once became transformed into a rapidly fatal cancer. Twice in the history of this case radium had been applied when the lesion was small and readily operable, and each time the malignant disease seemed to have been whipped up by the radium, which the patient had insisted on as he had heard so much of the "magic" efficacy of radium treatment of cancer.

The Serum Treatment of Epidemic Cerebrospinal Meningitis.—Dr. Harry A. Ong (*Archives of Pediatrics*, Oct., 1913, via *American Medicine*, May, 1914) has given an excellent resumé of the information to date as to the results of Flexner's serum. He says:

The average mortality was reduced from approximately 70 per cent. to about 30 per cent.; the course of the infection shortened; symptoms were lessened in severity; recovery hastened; and sequelae prevented in a large percentage of cases.

Continued use of the serum since its introduction has substantiated these early reports. The serum greatly improves the mental condition, consciousness is cleared and patients often return from a comatose or delirious condition to a rational mental state within a few hours. Headaches are less distressing, and pain in the back and neck is greatly relieved. In the majority of cases there is a gradual amelioration of symptoms with the decline of the temperature by lysis. In about 30 per cent. of cases, however (mostly those in which the serum has been given early), the termination is by crisis—a sudden cessation in all symptoms and drop in temperature. The last signs to disappear are rigidity of the neck and Kernig's sign, and these may persist well into convalescence. Deafness seems to be the most common sequela.

Flexner's serum is bactericidal in its action, and must be brought into direct contact with the meningococci in the spinal canal and ventricles of the brain in order to be of value. All are now agreed that the serum should be given by lumbar puncture into the spinal canal.

Recent experiments have, however, revealed different strains of

the organisms, some of which are resistant to the action of the serum. The serum does not promote phagocytosis in cases infected with these strains—the meningococci remain free in the cerebrospinal fluid.

Lumbar puncture, besides being of great diagnostic value, as well as serving for the introduction of serum, is also a valuable therapeutic measure in itself. It relieves excessive intracranial pressure, as well as removes toxic material and organisms from the spinal canal. In some cases it is a life saving measure and should certainly be performed without hesitation in all cases where inflammation of the meninges is suggested or suspected. In this way only can epidemic cases be recognized early and patients be given the benefit of an early injection of serum. In other varieties of meningitis the simple withdrawal of the cerebrospinal fluid may cause marked improvement and ultimate recovery.

The Infection of Children with the Bovine Tubercle Bacillus.—*British Medical Journal*, January, 1914. A. P. Mitchell states that twentyfour of seventytwo cases with tuberculous cervical glands were under three years of age. Of these twentyfour, only two were proven to be of the human type; the rest were all bovine. Eighty-four per cent. of the children thus afflicted two years of age had been fed from birth on unsterilized cows' milk, and in only three cases was a history of tuberculosis found in the family.

The author states that cows not having tuberculosis of the udder may readily transmit the tubercle bacillus in the milk. He emphasizes the extreme importance of adequate dairy inspection and the taking of the tuberculous cows out of the herds, as one tuberculous cow may readily infect the milk of a good sized herd.

The relations between the channels of infection and the group of glands involved is discussed. He says the more frequent involvement of the glands in front of the sternomastoid muscle in the upper carotid region is strongly suggestive of the faucial tonsils being more often a source of infection than the adenoids. He investigated the faucial tonsils in 64 consecutive cases of children suffering from tuberculous disease of the upper deep cervical glands. Twentyfour of these cases showed histological evidence of tuberculosis in the tonsils, but no clinical signs were present.

The chief sites for tuberculous lesions in the tonsil are in the deeper parts of the crypts, especially the supratonsillar group, or immediately under the mucous membrane near the mouths of the crypts, or deep in the tonsil close to the posterior capsule. He concludes that cows' milk containing bovine tubercle bacilli is

clearly the cause of 90 per cent. of the cases of tuberculous cervical glands in infants and children residing in Edinburgh and the surrounding district.

Modern Theories of Hysteria.—J. A. Ormerod, *The Lancet*, May 2, 1914, states that the fundamental defect in hysteria, according to Janet, consists in a feebleness of mental synthesis; yet this is a condition that has to be inferred and cannot be directly observed. But there are certain very common mental traits open to observation to which Janet gives the name of mental stigmata, adopting the term used by Charcot for certain common bodily symptoms. Among such mental stigmata are: (1) Suggestibility, not merely that an idea can be easily implanted in a patient's mind, but that it tends to develop there and engross the whole mind. (2) Distractibility. This is merely the obverse of suggestibility, while the patient is occupied with one idea she forgets all others. (3) Feebleness of will, so-called "aboulia." Whatever the will means it implies at the lowest estimate a weighing and comparison of many motives, which is just the sort of thing which the hysterical patient cannot do. (4) Changeability and waywardness, as of symptoms, so of disposition and desires, a trait that has been most unjustly transferred to the whole female sex. (5) Defective memory amnesia. In addition to a localized amnesia there is a loss of memory which may be called "systematized." The patient forgets everything connected with a particular person, or a particular event, or even a particular conception. It is a class of memories that disappears, not a series of events in time. Hysterical patients are apt to be dominated by fixed ideas. So long as the fixed idea remains buried in the subconsciousness it may give rise to no overt trouble, but should circumstances arise to weaken the grasp of the personal consciousness, so that it vacates its proper dominion, then the subconscious idea may assume command.

Do Ameba Bear a Causative Relation to Riggs Disease.—In an editorial in the *New York Medical Jour.*, July 11, 1914, we find that, according to Professor Allen J. Smith, M.D., and M. T. Barrett, dentists, both of Philadelphia, they have found amebas present in scrapings from pyorrhea pockets in about fifty cases, while in gum margins of persons free from pyorrhea alveolaris none were found. Their technic consisted in collecting scrapings from pockets with a small platinum spoon; these were suspended in saline solution and viewed under a cover glass. The identity of the ameba was not determined, nor do they report through inoculation ex-

periments an etiological relationship to the disease. Having in mind the amebicidal action of emetine hydrochloride in amebic dysentery, they used it on the patients; a 0.5 per cent. solution of the emetine hydrochloride being injected into the apical pockets, filling them with the solution as the needle was withdrawn. This treatment was applied every day, or second day, with the result that the improvement was marked; suppuration ceased and the gums rapidly assumed a healthy appearance; there was also improvement in systemic symptoms. Further experiments may throw more light on this preliminary report which will be of interest and real value in our treatment of this troublesome complaint.

Typhoid Bacilli Carriers.—Hirschbruch, *Berliner klinische Wochenschrift*, Berlin, June 22, 1914, states that the great difficulty in discovering bacilli carriers is that they eliminate the bacilli only intermittently, as he shows by a number of instances from the Metz station. One woman was examined daily and the findings were negative fifty-two times and positive only twice, and yet typhoid bacilli were found at necropsy. In another woman examined regularly once a month, at one time, there was a negative interval of three years and ten months between numerous positive findings. Typhoid bacilli were found in 1910 in the stool of a woman who had typhoid forty years before. She died three years later, and nine days after her death another inmate of the house developed typhoid for which she was evidently responsible. Some of the known carriers voided the bacilli only after taking castor oil, others only after aloin and podophyllin, while in two of the known carriers elimination of the bacilli could not be stimulated by any of the numerous purgatives tried.

Antityphoid Vaccination.—No amount of theoretical proof or disproof of the value of typhoid vaccine can affect the practical accomplishment of antityphoid vaccination. Previous to vaccination in the United States Army the best sanitary measures were only able to reduce the death rate to 19 per 100,000. In southwest Germany perfect sanitary organization and military discipline have only been able to reduce the typhoid death rate to 4 per 100,000, while the case rate for the United States Army in 1913 was only 3 per 100,000. Vaccination is as successful in preventing typhoid as in preventing small pox. The death rate from typhoid in the registration area for 1913 was 16.5 per 100,000. There are no valid reasons why everybody outside the Army and Navy also should not be vaccinated. Vaccination against typhoid does not

prevent other water or milk borne diseases, so that sanitary improvements are as necessary after as before vaccination.—*Jour. Ind. State Med. Assn.*

Parathyroid Deficiency and Sympathetic Irritability.—Hoskins and Wheelon, *American Journal of Physiology*, Boston, June, 1914, found that parathyroid destruction in dogs results in a marked increase of vasomotor irritability as shown by the reactions to nicotine, epinephrin and pituitrin. All components of the vasomotor mechanism, sympathetic cells, myoneural junction, and musculature, seem to be affected. The effects are of varying degree in different cases. There was observed no strict parallelism between the external symptoms of parathyroid deficiency and the degree of vasomotor irritability. Inconclusive evidence indicates that calcium injections in some measure restore vasomotor irritability toward normal. The sympathetic system offers no exception to the general increase of irritability that results from parathyroid extirpation.

Intramuscular Administration of Antisyphilitic Drugs.—Robertson, *Journal Lancet*, Minneapolis, July 1, 1914, states that intramuscular injections of salvarsan and neosalvarsan uniformly produce severe destructive lesions, which always heal slowly and often are complicated by hemorrhages and sloughing abscesses. The severity of the reaction from the use of either drug is essentially the same. Salvarsan always leaves an insoluble pigment which acts as a foreign body. Mercurial preparations when injected into muscles produce similar lesions. The lesions produced by experiments on animals and in human beings are similar in every respect. Robertson regards the use of such preparations in this manner as an unjustifiable procedure in certainly the majority of cases.

Prophylaxis of Cancer.—Mayo, *Annals of Surgery*, Philadelphia, June, 1914, emphasizes the fact that preexisting lesions play the most important part of the known factors which surround the development of cancer, that such precancerous lesions are produced by some habit or life condition which causes chronic irritation, that where cancer in the human is frequent a close study of the habits of civilized man as contrasted with primitive races and lower animals, in which similar lesions are conspicuously rare, may be of value, and, finally, that the prophylaxis of cancer depends, first, on a change in those cancer producing habits, and, second, on the early removal of all precancerous lesions and sources of chronic irritation.

THERAPEUTIC PROGRESS

Hexamethylenamin as an Internal Antiseptic.—Hexamethylenamin is dependent on the liberation of formaldehyd for its antiseptic value. It is not converted into formaldehyd in any of the normal alkaline fluids of the body; therefore, Hinman, *Archives of Internal Medicine*, Chicago, June, 1914, claims it can be of no prophylactic value in any of these fluids. After some infections of these fluids there may be under certain conditions a change in reaction sufficient to produce slight liberation of formaldehyd, but it was not possible to show that there would be enough to give antiseptis. In localized infections of pronounced acidity, hexamethylenamin is not taken into them from the circulation in amounts to furnish formaldehyd in antiseptic strength (the gall bladder, possibly, excepted). The therapeutic use of hexamethylenamin as an internal antiseptic is justified, experimentally, for urinary conditions alone, and then only when it is excreted into an acid urine.

After the administration of hexamethylenamin (McGuigan and Hess), free formaldehyd appears only in the gastric juice and acid urine, and not in other secretions or in the blood, even with dialyzing tests, the authors hold that the liberation results from the acid reaction only and not from cell action. Even if it were liberated in other locations it would probably exert no beneficial action because of its reconversion or rapid oxidation into injurious products. Combined formaldehyd as hexamethylenamin, does not decompose readily until an acid medium is reached, when indication for the internal administration of the drug, therefore, is in infections of the urinary tract.

Cumarin; a New Cardiac Remedy.—V. D. Zelensky, *Roussky V'ratch*, January 25, 1914, tested this new glucoside of apocynum cannabinum on animals, with the following results: A toxic dose applied to a frog's heart increases at first the diastole and systole and slows somewhat the heart's action. This is followed by weaker contractions of the ventricles, arrhythmia, slowing of the heart, and final cessation in systole. On the isolated heart of cats, small doses produce slowing and somewhat increased systolic contractions; larger doses have a greater effect. The blood pressure, depending on the dose, was found raised in experiments on dogs. This increased pressure was due to the local action of the drug on the vessels. The author concludes that cumarin is an active cardiac tonic similar in action to drugs of the digitalis group.

Digitalis in Heart Disease.—That digitalis is not efficient in all diseases and disorders of the heart is emphasized by Powell, *Practitioner*, London, May, 1914. In acute injuries, such as rupture of the aortic valves, in such acute affections as pericarditis, endocarditis, myocarditis, it is of little or only of quite subordinate value. In chronic disease of the myocardium, of syphilitic, alcoholic, or coronary origin, the use of digitalis is of secondary importance, and is often distinctly contraindicated. It is in chronic valvular disease with failing power of ventricles that digitalis and, in a less de-

gree, the class of drugs which it represents, are especially indicated; in fatigue of heart after acute disease or strain, it is also of great value.

Influence of Sodium Bicarbonate on the Pancreatic Secretions.—E. Wilbrand, *Münchener Medizinische Wochenschrift*, June 30, 1914, fed a dog in which he had made an artificial duodenal fistula with, 1, 100 grams meat; 2, 100 grams meat plus ten grams sodium bicarbonate in substance; 3, 100 grams meat plus ten grams sodium bicarbonate in five per cent solution. These feedings were given at different times and the secretions collected after every test. The results showed that the secretion of the pancreas is decreased and the work of the gland spared when sodium bicarbonate is given, especially when it is given in solution. The gastric secretion is not influenced.

Grotan, a New Disinfectant.—Aumann and Storp, *Berliner Klinische Wochenschrift*, March 2, 1914, have carried out a series of investigations with grotan or sodium chlorcresolate. Solutions are slightly alkaline and perfectly clear. This substance, although a very strong disinfectant, has no corroding effect on nickled instruments, nor does it act as a caustic like phenol or lysol when applied to the skin. It is not toxic, in small doses not affecting guineapigs. Owing to the faint odor of cresol and to its red color, it is a fairly safe disinfectant. Even in 33 per cent. solution it has a decided disinfectant action on bacteria even in albuminous solutions.

Deep Muscular Injections of Mercury.—B. L. Wright, *Medical Record*, July 11, 1914, prefers for injections mercuric succinimide, and he reports results in the following diseases: Tuberculosis, thirty-five cases; lobar pneumonia, nine cases; lobular pneumonia, six cases; typhoid fever, five cases; cerebrospinal meningitis, one case; erysipelas, two cases; infectious arthritis, thirty-nine cases; acute rheumatic fever, eight cases; chronic articular rheumatism, seven cases; gonorrheal arthritis, twenty-four cases. He comments on the value of mercury in the treatment of rheumatism.

Influence of Pilocarpin on the Blood Pressure.—Dr. W. D. Robinson, Philadelphia, at the Meeting of the Climatological Assn., June 19 to 20, 1914, stated that in intelligently selected cases of hypertension, pilocarpin has not failed to be of value. In many instances, indeed, it was of very great value. The therapeutic dangers usually accredited to this drug have not been encountered in the modified doses in which he has used it.

Potassium Chlorate is efficacious in endometritis. It will also stop uterine hemorrhage and reduce the size of a subinvolted uterus. In habitual miscarriage, this drug, given in 5 grain doses three times daily and continued throughout pregnancy will produce no untoward effects and be followed by normal labor.—*American Medicine*, May, 1914.

Curable Tabes.—Grandclément, *Lyon Médical*, April 26, 1914, asserts that tabes dorsalis appearing before the age of forty years and only about ten years after the initial infections can frequently be cured by energetic mercurial treatment.

MISCELLANY

THE SPARTAN ENVIRONMENT

Two factors stand out prominently in the environment which Sparta afforded: viz., trust and noninterference. Every child was taught to trust in an older one and thus progressively the soldier in his officer, the officer in his king and the king was a high priest. Thucydides, in his report of the "Address of the Corinthians," makes this quite clear: "The spirit of trust, Lacedemonians, which animates your own political and social life makes you distrust others having something unpleasant to say." And, again, "Justice with you seems to consist in giving no annoyance to others and in defending yourselves only against positive injury." The Spartans are reproached that they alone of all the Greeks do nothing. It is quite evident that if Sparta was only let alone, that the Spartans would preserve their own laws and environment, and, in short, would mind their own business and would not interfere with their neighbors. The Spartan law givers well understood the tremendous power of incentive and confidence in shaping the traits and characters of children. Incentive was guided away from mechanics and toward athletics. The Spartan had confidence in the Spartan, for or because, he knew the Spartan training and the self reliance and mass reliance which were its results. An assembly of Spartans was never a mob, for from earliest childhood they had been trained to obey orders *en masse*. Quite a different thing from the nondiscipline of the ordinary mob. The Spartan child was taught to trust his neighbors and his State. He was given such arms, clothing, etc., as were considered suitable, he took what was given and was taught their use. He became a trained soldier and was not quarrelsome for the same reason that a trained boxer is not quarrelsome. Their trust in each other was so great that it cast out worry and fear. It gave rise to over confidence and led to their overthrow, for Epaminondas, the great Theban general, planned the battle of Lencra on the basis that if the body of Spartans who were posted nearest the king were defeated the rest of the Army would be an easy conquest. Xenophon tells how the Theban infantry were massed fifty deep, accomplished the purpose, and the Spartan first saw his environment invaded. Yet, even then, when of seven hundred, four hundred fell, such was the drilling in reliance one on another, that the survivors reformed their ranks and compelled a truce. It seems as though this is unequaled, even by Thermopylae, as an example of absolute confidence in the staying power of one's fellows.

The Spartan environment furnished a child with a full stomach, a contented mind and a contempt for luxuries, but even in that day there were thinkers who found that content too great and the garments too scanty. Discontent and disadvantage are not necessa-

rily equivalents. The discontent of an individual with his surroundings has led to his sufferings, these in turn have caused his progress, and his advancement has been to the advantage of his race. There was neither discontent, progress nor poverty in Sparta, but there was good health. The enthusiast on Eugenics may point to the Spartan with pride as having produced a magnificent race of human thoroughbreds, but the political economist will always demand, "what for?" since they "of all the Greeks did nothing."

The teachings of Spartan laws on Eugenics are the work of "men who did," but the waste of life was woeful, and so far as the World is concerned their existence is negligible aside from questions of race culture and physique.

DOUGLAS H. STEWART, M.D.,

ORIGIN OF SOME WELL KNOWN MEDICINES

Dover's powder, introduced into the "British Pharmacopoeia" in 1748, was the result of the work of Thomas Dover, who was born in 1668; studied under Sydenham; practised in Bristol in 1684. During the year of 1708, when Thomas Dover was captaining a privateer expedition, he landed in Peru, and following this his seamen became afflicted with the plague. Together, with four surgeons, he treated 180 seamen by bleeding each 100 ounces and by using the powder. In 1742, after he had returned to London, he brought out this powder for gout, and it was called by him diaphoretic powder.

"Fowler's Solution" was introduced by Tom Fowler, an apothecary, in Yorkshire, England. A proprietary medicine, named "Tasteless Ague and Fever Drops," was quite popular at that time, so Fowler analyzed it and found arsenic in it. He worked out the formula, added spirit of lavender, and called the resulting preparation Fowler's Solution.

Laudanum was a name invented by Paracelsus in 1500, who applied it to an aqueous extract of poppy, which he gave in five grain doses. Sydenham first introduced liquid laudanum, *acetum opii*, which continues today as the laudanum of the continent. The word *paregoric* was first used as an adjective, meaning to speak words of comfort, and at first to describe an elixir. Lemort, a Leyden chemist, brought forth *paregoric elixir* early in the eighteenth century. Many of the older Greek and Latin physicians had *paregoric elixirs*.

One of the oldest known combinations is that of *Hiera Picra*, sometimes referred to as *Hickera Pickera*, or *Hickory Pickory*.

Hiera was applied to prescriptions in early Grecian medicine, and these contained either aloes or scammony, or both. Each physician had his own particular *Hiera*; Galen's consisted of aloes. The pill of aloes and myrrh was first introduced as *Rufus Hiera*.

Friars' Balsam, introduced by *Fridasor*, a friar, first consisted of *Balsam of Peru*, later *benzoin* was substituted.

Blaud's pill, introduced by a Frenchman in 1841, consisted of iron sulphate and potassium carbonate.

Citrine ointment made its début in 1650, and at that time consisted of lead and grease. In 1722 mercury was dissolved in nitric acid and mixed with lard. A Yorkshire physician was responsible for this.

Diachylon, meaning a precipitation of juices, was of importance, from a medicolegal viewpoint, in England, where it was used by the ignorant class to produce abortion. This ointment dates back to the time of Tiberius.—*Merck's Report*.

DRINKING WATER AND DENTAL CARIES

Dr. J. Basil Cook contributes to the *Lancet* for March 28, 1914, some studies he has made concerning the relation of the quality of the drinking water in various urban localities to the incidence of dental caries; his inquiry was limited to children over twelve years of age, and four or more carious teeth was the standard selected. The conclusion seems to be warranted that hard water has not only a favorable influence on the teeth, but also, and for that reason, probably, on the death rate in children. Doctor Cook believes that the matter deserves further study and would like to have information from rural communities.

THE INCOME TAX AND EUGENICS

The income tax features of the new tariff law do not encourage matrimony for the purpose of thrift, nor do they discourage race suicide. *The Lancet Clinic*, October 11, 1913. Living apart a man and woman are entitled to an exemption of \$6,000 per annum—or even living together and unmarried; but marriage immediately reduces this exemption to \$4,000 a year, and the law takes no notice of any additional mouths that the marriage may be responsible for. It seems hardly right, either upon legal, moral or eugenic grounds, that the family should be penalized. France places a bounty upon fruitful marriages—the United States penalizes it.

THE TARTRATES

Many of the organic acids, such as citric and acetic, are burned up in the body, giving rise to carbondioxid and water; sodium citrate acts just like sodium carbonate in the organism. Tartaric acid and its salts, however, are for the most part not destroyed in the body, but leave it in their original form. Animal experiments have shown that large doses of the tartrates may give rise to symptoms of nephritis. The claim made that baking powder containing tartaric acid of cream of tartar is wholesome is evidently unwarranted. W. Post declares, *Jour. A. M. A.*, February 21, 1914, that doses in which the tartrates are given in purgative mixtures are probably without harmful effects.

BOOK REVIEWS

A Text-Book of Medical Diagnosis. By JAMES M. ANDERS, M.D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College of Philadelphia, and L. NAPOLEON BOSTON, M.D., Professor of Physical Diagnosis, Medico-Chirurgical College, Philadelphia. Second edition thoroughly revised. Octavo of 1,248 pages, 500 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

We have here a monumental work covering the whole field of Medical Diagnosis. So rapid is the advance in our knowledge of disease that this revision becomes necessary in a trifle over two years following the appearance of the first edition. The authors have accomplished their task in a most satisfactory manner. A vast amount of new material became necessary to complete the work. This includes such important additions as electrocardiograms; extrasystole; auricular fibrillation; sinus irregularity; succussion sounds audible over the abdomen; abdominal tension with original methods of determination; albuminous sputum; cobra venom reaction in syphilis; the tick in transmitting relapsing fever; Rumpell-Leed phenomena in scarlet fever; MacEwen's sign and Brudzendski's sign in epidemic meningitis; Prendergast's reaction for typhoid fever; pupillary reaction; drug eruptions; nitrogen content of the blood; colloidal nitrogen of the urine. Clinical tables have been added for numerous conditions; while the chapter upon blood pressure has been made complete with the assistance of Francis Ashley Faught.

It is obvious that an extended review of a work of 1,250 pages, covering so wide a range of subjects, is impossible; such a review would approach the dimensions of a text book. Suffice it, therefore, that the all important subject of diagnosis is here comprehensively and masterfully treated. The section Diseases of the Circulatory System is of sufficient importance and is here so well given that its possession alone would repay the purchase of the book. The part devoted to Diseases of the Nervous System, written by T. H. Weisenberg, M.D., will repay a careful reading, as will that on Röntgen-Ray diagnosis. In a word the work is encyclopedic in its scope and should find increased favor with the profession. The illustrations are decidedly illuminative.

The Practice of Surgery. By JAMES G. MUMFORD, M.D., Lecturer on Surgery in Harvard University. Second Edition, Thoroughly Revised. Octavo volume of 1,032 pages, with 683 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$7.00. Half Morocco, \$8.50.

A second edition of so notable a work as Mumford's Practice of Surgery in so short a time calls for more than passing notice. The author has gone through the text of the first edition and revised it as it seemed to him necessary to keep it abreast of progress.

This work departs from the usual arrangement of text books in that surgical diseases are discussed in the order of their interest: their importance and frequency of occurrence. It is an arbitrary arrangement, but is intended to facilitate study by the average practitioner. First in importance according to our author is operative procedure in the abdomen, beginning with appendicitis and ending with ptosis. Parts II and III include Diseased conditions of the Organs of Generation and the Genitourinary Organs. Part IV the Chest, V the Face and Neck, VI the Head and Spine, VII Minor Surgery, Diseases of Structure; this part including wounds, fractures and dislocations, shock, tumors and amputations. It was an ambitious task which our author has succeeded in accomplishing, hence a demand for a second edition of over one thousand pages including some seven hundred illustrations.

In discussing ptosis Dr. Mumford concludes that the human frame has not yet completely adapted itself to the upright posture and that to this fact is due many ills in the human not seen in the lower animals. He does not believe that all, or even most cases of displaced kidneys require an operation; he advocates a modified Trendelenburg position, manipulating and kneading the organ into place, to be retained in position by a bandage.

The reference to cancer and tumors is full and quite up to our present day knowledge that early radical operations is the only one to be seriously considered when cases are presented before they become really inoperable.

Chapters XXIX, fracture and dislocation are especially interesting.

The work is in all respects a most desirable one, and should meet with increased popularity. Paper, type, binding all of the Saunders type.

A Treatise on Clinical Medicine. By WILLIAM HANNA THOMSON, M.D., LL.D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, etc. Octavo volume of 667 pages. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$5.00. Half Morocco, \$6.50.

The veteran teacher, Dr. Wm. H. Thomson, has given us a very useful work on Clinical Medicine. He informs us that such a treatise should chiefly consider those subjects which concern the physician when he deals with the sick. We are sometimes in a quandary as to whether the practice of medicine is today directed solely to the cure of disease, or largely to the knowledge of scientific facts learned in the laboratory. It should be our one aim to bring relief to the patient. The etiology and pathology are essential to proper treatment as is the action of remedial agents in both health and disease. Hygiene and prophylaxis play an all important part.

In reference to the treatment of rheumatic fever, Dr. Thomson states that since the introduction of the salicylates, which have such a marked control over the pains, an unjustifiable abandonment of the old alkaline treatment has occurred, with the result of his firm conviction that the cardiac complications are more common now than before. The salicylates do not diminish in any way the tendency to cardiac inflammations, while an adequate and early recourse to the alkaline treatment undoubtedly lessens the occurrence of both endocarditis and pericarditis. This is not in strict accord with some recent works on treatment, but sane notwithstanding. Again, in referring to the etiology of gout, Dr. Thomson declares that it is not alcohol that causes gout, because in countries which are noted for excess in the use of spirituous liquors every disease which alcohol produces is sure to be common except gout. It is pandemic in England upon account of the consumption of beers and ales, while on crossing into Scotland, where whiskey is the universal drink, gout is unknown. Upon the introduction of beer into the United States, gout became known, whereas it is practically unknown where only whiskey is consumed.

We might go on with illustrative references from this very excellent work, but space will not permit. What appeals to us is the personal note running through the work. It is like hearing clinical lectures at the bedside, by one with large and varied experiences.

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ORIGINAL ARTICLES

TREATMENT OF PUERPERAL ECLAMPSIA*

WITH REPORT OF A CASE

By HARRY L. READ, M.D.

Louisville, Kentucky

Notwithstanding the extensive clinical and experimental investigations which have been prosecuted, and the hundreds of elaborate dissertations which have been written during the last few years anent the cause of puerperal eclampsia, there is yet no consensus of opinion on the subject, except that it represents a toxemia, or is the result of disturbed metabolism. So long as the etiology remains unknown, necessarily the treatment must be empirical and entirely symptomatic, i.e., it can never be in any sense specific.

Proper prophylactic treatment will prevent most toxemias of the mild and many of the severe forms, and is the keynote in lowering the mortality of this much dreaded complication of pregnancy. It is the duty of the physician to always inform his patient concerning the dangers incident to pregnancy, to instruct her in regard to clothing, exercise, diet, proper elimination, etc. Also to examine a twenty-four hour specimen of her urine once per month for the first six months and every two weeks thereafter, and to keep an accurate record of the blood pressure during the same time.

I believe a large percentage of pregnancies are pathological rather than physiological, and there would be fewer cases of severe toxemia if closer attention were paid to the so-called minor ills of gestation. In order to practice the necessary prophylactic treatment the physician must be engaged at least six months prior to the date of expected delivery, which I am sure is now being done oftener than heretofore. By careful consideration of the urinalysis and blood pressure together with the subjective symptoms, we are able to

*Read before the West End Medical Society, of Louisville, Kentucky.

detect the earliest manifestations of defective metabolism. Relief may usually be obtained by rest, regulation of diet (milk is the best), warm baths once or twice a day, and thorough elimination, which is best secured by the administration of salts and the giving of enemata. If, in spite of this treatment, toxemia becomes pronounced, and we are brought face to face with the preeclamptic state, . . . as shown by examination of the urine, increase of blood pressure, restlessness, frontal headache, vomiting, edema, etc., . . . we should administer five grains of calomel in a single dose, or one grain every hour until five grains have been taken, followed by saturated solution of magnesium sulphate repeated until free elimination is produced.

Should the symptoms become worse and eclampsia supervene, the treatment for control of the convulsions is morphine, chloroform inhalation, veratrum viride, and chloral hydrate. In the writer's judgment *accouchement forcé* is indicated in every case of eclampsia, and should be performed as quickly as possible without the infliction of serious injury to the soft parts of the mother. This may be best accomplished by having the patient anesthetized, and under strict aseptic precautions gradually dilate the cervix, first by inserting into the os uteri one finger of the gloved hand, then one by one the remaining fingers until sufficient dilatation is secured. When the head is engaged, apply forceps and deliver. Podalic version is the method of choice if the head does not properly engage.

After delivery thorough elimination should be obtained if this has not already been accomplished. The most appropriate treatment at this time is salts in saturated solution every hour until free watery evacuations occur, with veratrum viride in fifteen to twenty drop doses hypodermically to reduce blood pressure and slow the pulse. The latter should be repeated in ten minim doses as often as may be necessary to maintain the pulse rate at about sixty, with morphine to control restlessness and nervous symptoms. Diuretics are usually not indicated. However, the best diuretic is normal saline solution, one pint under each breast.

During the last three months I have seen one patient with puerperal eclampsia, and three others in the preeclamptic state. The former will be reported in detail. Of the latter, which were observed between the seventh and eighth months of gestation, two were carried to full term by the prophylactic treatment outlined in the foregoing, in the other a dead child was delivered about the eighth month. There was no maternal mortality.

On January 10, 1914, the writer was engaged to deliver Mrs. T., aged nineteen years, primipara, who had then advanced to about

the seventh month of uterogestation. She appeared in perfect general health, although there was slight edema of the feet and ankles such as is oftentimes observed at this stage of pregnancy. Examination showed normal abdominal distension for seven months' gestation, with normal pelvis. The fetal heart sounds were strong and easily detected. A specimen of urine was obtained, analysis of which showed specific gravity 1.012, reaction acid, no albumen. Heat and nitric acid test used. The urine was again examined two weeks later, and no albumen found.

The following history was furnished by the mother: Father of the patient dead, cause unknown; mother in good health; one brother died in infancy; no sisters; patient was a bottle-fed baby. At the age of six months she had an attack of dysentery, during which several convulsions occurred. She had none of the usual diseases of childhood, nor had there been any serious illness since. Menstruation was not established until the age of sixteen, and had always been irregular.

Present illness: Was called to see the patient February 5, 1914, when her pregnancy had advanced to the eighth month. She was then considerably nauseated, and had vomited once; she complained of severe frontal headache; pulse 78; kidneys and bowels had acted a few hours before; there was pronounced edema of feet and ankles. Three ounces of saturated solution magnesium sulphate administered at once, and two hours later a large enema of normal saline solution given. A specimen of her urine was obtained and taken to the office for immediate examination. It was found to contain a large amount of albumen. The examination had scarcely been completed when a call was received to come at once to her home, and on reaching there it was found a convulsion had occurred half an hour previously, the patient falling from her chair into the fire, sustaining a slight burn of the right arm. She was extremely nervous, pulse 100, vision entirely obliterated, blood pressure 190 m.m. Hg. One-quarter grain morphine immediately administered hypodermically. Within thirty minutes she had another convulsion, which was controlled with chloroform. Assistance was called and preparations made for immediate delivery; but before we could get everything in readiness (which was about forty minutes) another convulsion occurred. Examination at this time showed no dilatation of the cervix, and of course none could be expected at that stage of gestation. The patient was then anesthetized with chloroform, the cervix being rapidly dilated and delivery accomplished with forceps within about an hour.

The child was markedly cyanosed and apparently dead at the

time of birth, but after working with it for thirty minutes breathing became fairly normal. The infant lived sixteen days, and during that time had ten or fifteen convulsions.

The placenta was normally expelled within twenty minutes. There was a slight vaginal laceration, for the closure of which two silkworm gut sutures were inserted, followed by perfect union.

As soon as the patient regained consciousness from the anesthetic, two ounces of saturated solution magnesium sulphate were administered every half hour until free evacuation occurred. Two hours after delivery she had a convulsion, during which the bowels and kidneys acted involuntarily. The blood pressure at this time was 155 m.m. At midnight $\frac{1}{8}$ grain morphine given hypodermically to promote quietude.

The following morning, February 6th, pulse 90, temperature 101° F. Administered five grains calomel, followed in four hours by two ounces of castor oil. Examination of the urine at this time showed a moderate amount of albumen. At five o'clock P.M. she had a convulsion; pulse 114. Twenty minims veratrum viride administered hypodermically, and within half an hour the pulse had declined to 60 per minute. Ordered ten minim doses veratrum to be given by the nurse when necessary to maintain the pulse rate at about 60.

February 7th, 9 A.M., pulse 64, temperature 100° F., respirations 20, blood pressure 140 m.m.; patient still semiconscious and unable to distinguish light from darkness. Later in the morning she retained five ounces of tea. About noon she had a convulsion lasting thirty minutes, the nurse being unable to count the radial pulse; $\frac{1}{30}$ th grain strychnine given hypodermically: thirty minutes thereafter pulse rate 152; hypodermic injection ten minims veratrum viride, and within two hours the pulse rate had declined to 56. Ordered five grains calomel, to be followed in four hours by two ounces saturated solution magnesium sulphate every hour until free evacuation occurred.

February 8th, temperature 99° F., pulse 56, blood pressure 135 m.m. Patient voided twenty ounces urine in the forenoon. Beginning at four o'clock P.M., ordered salts to be given every hour as before, resulting in large watery stools. Patient for the first time since beginning of illness able to distinguish light, i.e., when a lighted match was passed before her eyes there was a perception of light.

February 9th, temperature 99° F., pulse 74. Hot milk permitted every four hours; two grains calomel on tongue, followed by salts in six hours. Mental condition and vision much improved.

February 10th, temperature and pulse normal; blood pressure

130 m.m. Liquid food allowed every four hours; $\frac{1}{2}$ ounce Basham's mixture t. i. d.

February 12th, patient mentally clear, and vision restored.

February 25th, recovery perfect.

Several previous writers have emphasized the utter futility of prophylactic treatment in puerperal eclampsia, and advise the administration of full doses of morphine or veratrum viride, claiming that convulsions may be thus controlled and the patient carried to the stage where spontaneous delivery will safely occur.

On the other hand, writers of equal prominence suggest immediate surgery in the treatment of eclampsia, such as Caesarian section, renal decapsulation, hysterotomy, hysterectomy, etc. However, these ultrasurgical measures are noted merely to suggest their condemnation as being generally unjustifiable. Of course, if there exist sufficient pelvic deformity to prevent extraction of a living child through the normal channel, Caesarian section may become necessary in the interest of both mother and child. The mortality of this operation in competent hands has during recent years been markedly reduced.

While occasionally the minor procedure of systemic depletion by venesection may be advantageously employed, even this simple operation should be practiced with caution, since it is important that the strength and vitality of the patient be conserved.

DISCUSSION—DR. J. B. LUKINS

The most plausible theory is that the etiology of puerperal eclampsia is an acidosis due primarily to intestinal intoxication or intestinal infection, followed by edema and congestion of the liver, the kidneys, the brain and nervous system. This is said to explain cases of eclampsia without albumen in the urine, i.e., that there is a cerebral rather than a renal edema; but whether or not that is literally true is unknown. The theory appears reasonable, however, and is accepted as correct by many observers, especially those who claim that the most effective treatment is the administration of alkalines. If the underlying cause be an acidosis, that readily explains why such excellent results follow the administration of magnesium sulphate, potassium acetate, etc.

The prophylactic treatment of eclampsia is most important. It has been frequently remarked that eclampsia oftentimes appears "like a clap of thunder out of a clear sky." I do not believe that statement unless either the patient or the doctor be at fault. If the patient be observed early and is closely watched, the blood pressure being taken and the urine examined at frequent intervals, and if

instructions are followed as to diet, baths, elimination, etc., eclampsia may be prevented in the majority of instances, as I believe there is always a recognizable preeclamptic state, i.e., the so-called "toxemia of pregnancy," preceding the development of convulsions. I do not mean to say that eclampsia can be prevented in every case, as some women will have convulsions in spite of everything that can be done.

I agree with everything the essayist has said in regard to treatment. When once a convulsion has occurred, *veratrum viride* should be administered. I have given the entire contents of a hypodermic syringe (about thirty minims) as the initial dose, and fifteen to twenty minims every two or three hours thereafter until proper effect was secured. Sometimes the nervous system of the patient is exceedingly irritable, and even after the convulsions are controlled and albumen has disappeared from the urine, further treatment is required to prevent invalidism. The patient should return frequently for examination as to blood pressure and urinalysis. Dr. Read's patient had convulsions when a child, thus showing evidence of an irritable nervous system which persisted until she was nineteen years old. Therefore in the presence of an acidosis or a toxic condition of the blood she was more prone to develop convulsions than one who had not so suffered previously.

In my opinion the blood pressure is just as important as urinalysis. If, in a pregnant woman, the blood pressure is above 150 m.m. Hg., other symptoms of toxemia should be sought, unless examination reveals another cause for the high blood pressure. Wherever the blood pressure is over 150 m.m. it is the physician's duty to examine the urine, then look for edema and other symptoms of the preeclamptic state.

There is no complication of pregnancy which requires the exercise of greater skill and judgment on the part of the attending physician than eclampsia. It is one of the most fearful complications of gestation. More often than otherwise the physician is not called to see the patient until the development of labor pains. Considering the length of time I have been in practice, it has been my misfortune to see a greater number of this class of patients than the majority of physicians; and in every case of eclampsia that has come under my personal observation I was not called until convulsions had supervened. On the other hand, in every case of toxemia of pregnancy that I have seen and treated early, convulsions did not occur. I have had one case where the blood pressure was 208 m.m. with albumen and casts in the urine for sixty days. Some of the older text books state if casts are found one should suspect nephritis rather than edema of the kidney; but this is not true, and many

cases have been observed in which both granular and hyaline casts were present where nephritis did not develop, as proven by later investigation. I have had three such cases where the casts disappeared, and the patients are in perfect health.

DR. J. K. FREEMAN

It seems to me that morphine is contraindicated in the treatment of puerperal eclampsia. If free elimination is desired, why should a drug be administered which "locks up the secretions"? The essayist mentioned both sides of the question, and it is claimed those who use morphine save as many patients as those who do not. When something is desired to control convulsions, chloral and the bromides would be safer and perhaps better. We are all agreed that veratrum viride should be employed for its effect.

As to the cause of eclampsia, no reliable theory has yet been proposed; it is like idiopathic epilepsy, the cause has not yet been discovered. Contrary to Dr. Lukins' belief, eclampsia does sometimes appear like a "thunder clap in a clear sky," but as a rule if the patient be carefully watched the premonitory symptoms will be noted. A "dragging or heavy feeling" is oftentimes a valuable warning sign.

Puerperal eclampsia occurs with about equal frequency in the higher and lower walks of life. The first case of eclampsia I ever saw was in a robust, hard working multipara. It was a very severe case and the woman died during the first convulsion while we were trying to empty the uterus.

An unusual symptom in Dr. Read's case was that the woman remained blind so long. Another point: we must differentiate between epilepsy and eclampsia. A woman may have an epileptic seizure during her first labor pain; that has happened. I recall one case in which it seemed certain that the patient had eclampsia, but after delivery and further study of the case I concluded it was epilepsy. According to the history, there had been several epileptic attacks previously. As Dr. Lukins has suggested, there is a difference in individuals, and what will produce convulsions in one may not do so in another.

DR. H. H. GRANT

Dr. Read stated that he regarded pregnancy as more commonly pathological than physiological. If this be true, then even observance of the precautions suggested would be insufficient to place the woman in a perfectly safe situation. I am sure if we as men were

threatened with the terrible dangers Dr. Read has portrayed, we would certainly protect ourselves by entering a proper hospital, where appropriate treatment could be most satisfactorily applied. It seems to me this would be particularly applicable to the class of cases under discussion, provided instrumental delivery were to be accomplished. I have twice instrumentally delivered eclamptic primiparae in private houses, and both patients perished. In each of these cases the condition was encountered which Dr. Onderdonk has described, i. e., an os that was almost impossible of dilatation, requiring much time and manipulation, and the shock thus produced in addition to the convulsions resulted in cerebral congestion from which neither patient rallied. For this reason I believe wherever the preeclamptic state can be determined, if it be possible to place the patient in a good hospital where satisfactory measures can be applied if instrumental delivery is to be undertaken it should certainly be done.

As to the propriety of instrumental delivery: Some excellent authorities believe this should never be undertaken, claiming that it entails greater danger to the patient than expectant treatment. While I do not wish to try to refute the statement, I maintain that if instrumental delivery is to be undertaken, it should, if possible, be under such circumstances and surroundings as will permit the application of modern aseptic surgical principles. Free incision of the cervix and delivery (vaginal Caesarian section) can be quickly accomplished without great shock; and where the cervix is practically undilatable if emptying of the uterus seems imperative, that is the method I would recommend.

Most of the speakers who have preceded me made no reference to instrumental delivery, the majority claiming eliminative treatment and veratrum viride sufficient to insure a successful outcome. The objection to such an argument is that, where there is reason to believe the treatment will be unsuccessful, it is advisable to place the patient in a satisfactory hospital where instrumental delivery may be safely accomplished; but of course this cannot always be done in general practice. It is as much the duty of the physician, however, to observe this precaution for his obstetrical patient as in surgery of any other character. Although we are not agreed as to the necessity for instrumental delivery, those who undertake it should observe the necessary precautions in the interest of both mother and child. Even after convulsions have supervened, if the patient can be safely transported to the hospital, it should certainly be done before any obstetric operation is performed.

DR. REED (closing)

Referring to the remarks of Dr. Grant: I said that in many instances pregnancy was pathological rather than physiological, and this is believed to be true. If all gestations were physiological, there would be no puerperal eclampsia nor toxemia. Whenever eclampsia occurs there must be a pathological basis for it, and granting this to be true, are we doing our whole duty toward the pregnant woman? As suggested in the paper, it is our duty to carefully watch the pregnant woman, and I believe the time is coming when, so soon as woman becomes pregnant, she will place herself under the care of her physician. For example, with the exception of this one who had eclampsia, I have not delivered a woman in six months who had not been under my immediate care for three or four months previously, and at the present time I have several under observation who do not expect to be confined until next November.

I agree with Dr. Grant in regard to the advisability of hospital treatment under certain conditions, but in private practice it is oftentimes impossible to induce the patient to go to the hospital. I would unhesitatingly recommend that an eclamptic woman go to the hospital if it appeared serious difficulty would be encountered in dilating the cervix, or if a surgical operation seemed necessary. There is no doubt that dilatation in some cases is impossible. As to the advisability of vaginal Caesarian section in such cases, I believe abdominal Caesarian section will afford the least mortality to both mother and child.

As to the administration of morphine to the exclusion of other remedies: As mentioned in the paper, certain observers use morphine exclusively, the patient being given an initial dose of one half a grain, followed by one-quarter grain doses as often as necessary to keep her thoroughly under its influence, and it is claimed convulsions are prevented and good results secured by this method of treatment. However, I am as much opposed to that method of management as I am to ultrasurgical measures, especially early Caesarian section. It seems to be a fact that if Caesarian section be once performed, it is necessary to repeat the operation provided the woman again becomes pregnant, and in addition she has a uterus which is more likely to rupture during gestation. Surgical treatment of eclampsia, when indicated, may be safely executed in a well equipped hospital with trained nurses and trained assistants, but in the patient's home it is absurd to talk about performing Caesarian section.

I do not agree as to the use of croton oil, for the reason

that serious trouble might occur from irritation of the bowel; furthermore it is of no assistance in controlling the convulsions. The best plan is to quiet the patient by administering morphine, controlling the convulsions if necessary with chloroform and induce free elimination with calomel and magnesium sulphate. This method of treatment is appropriate even if the cause of eclampsia is an acidosis.

STATISTICS, DELUSIONS, AND CONSUMPTION

A REPLY TO DR. ROBIN'S CRITICISM

BY THOMAS J. MAYS, M.D.

Philadelphia

I read the criticism of my views* on the present prevention campaign of pulmonary consumption as published in the *New York Medical Journal* of August 15th last, by Dr. Albert Robin, of Wilmington, Delaware, with a great deal of interest, and would say that since his position is diametrically opposite to that of my own I trust that this discussion will bring into relief both sides of this much misunderstood problem. It is not exactly clear why Dr. Robin introduces his paper by referring to what he claims to have been the exposure of a Brooklyn physician's argument against diphtheria antitoxin some years ago, unless it is for the purpose of emphasizing his own superior grandeur in the practice of smashing things which are not quite agreeable to his particular mental twist. I am of the opinion, however, that if his common sense guide, by which he lays so much store throughout his present paper, was not more applicable to antitoxin than it is to pulmonary consumption's prevention, it surely deserved commiseration.

It is a pity that Dr. Robin, who evidently is a versatile writer, wastes so much literary ammunition on a subject of the dimensions of which he does not seem to have the faintest appreciation. He has exalted ideas that he is performing a wonderful work; an obsession which leads him to believe that he is conferring a lasting blessing on humanity, when actually he is doing nothing of the kind. If the present prevention crusade operating against consumption in this country, which Dr. Robin so ardently adores, had, like Topsy, "just growed up" without ancestry or parentage, some of the arguments which he advances would be pertinent. But it is well known that this same movement is old and had a thorough practical test, at least a century ago—in Italy for many years—and

*New York Med. Journal for July 4th and 11, 1914.

was then abandoned on account of its rank worthlessness. The medical historians of that day describe it as having had a disgraceful and barbarous career.

It is perfectly obvious, therefore, that no impartial and candid judgment can be rendered on this crusade by merely viewing it from its present comparatively narrow standpoint, as Dr. Robin does, but it must be considered from the side of its personal and family history, and also in its relation to similar episodes occurring in medical history.

Parenthetically and with regret it may be remarked that Dr. Robin's acumen as an unbiassed controversialist may be readily gauged by his infantile drivel about my position on this question being a "gross insult" to all the noble men, women, and medical practitioners, who are sacrificing time and money to rid mankind of the plague. This is merely a cheap and veiled threat, which, showing a dearth of legitimate material for defense, deceives nobody. It is not a question of offering insult, but one which has to do with the portrayal of the right and wrong of a problem that vitally affects the welfare of hundreds of thousands of people. He might as well score our great historians that depict the errors and inhumanities of the past, in which many good men and women were engaged under the strong belief that they were performing equally creditable service to mankind.

Medical history affords numerous records of this kind. Less than two hundred years ago thousands of witches were burnt at the stake or otherwise killed, because they were believed to have been possessed by devils, when it is well known that they were often subject to hysteria and other nervous diseases which are now believed to be readily curable. This was not done by the rabble, but by the representative and intellectual classes of that time, and only because the latter reasoned from false premises. It is not so many years ago since insanity was regarded as an obsession of evil spirits, for the driving out of which the victims were subjected to the most horrible and cruel practices, only because the medical profession of that time as well as the laity reasoned from false premises. In the middle of the eighteenth century Italy, under the delusion that pulmonary consumption was a highly dangerous contagious disease, inaugurated a system of isolation and segregation of the victims of this disease in closed institutions—the exact counterpart of what is now being attempted in this country—and enforced the same with rigorous laws. After a trial of more than fifty years in Naples and Tuscany, these laws were discarded on account of strong though late opposition of the medical profession, "as causes of much bitter-

ness, dissatisfaction, and vexation," and all because the medical profession and the governing element of that period reasoned from false premises.

Now Dr. Robin appears on the scene and hauls me over the coals for having the temerity to oppose the latter delusion, and while he is fully convinced that pulmonary consumption is solely due to infection or contagion through the mechanism of the tubercle bacillus, he is not quite sure as to the degree and ease with which this communication is effected, and is, therefore, not altogether inclined to subscribe to the doctrine that it is as contagious as smallpox. It does not matter much with how many frills and frescos Dr. Robin adorns his principle, it is still true that a disease that comes from the outside of the body must be one of exposure at some time, and that hence, as in the case of smallpox, those who are most exposed to the poison must be more liable to it. There is no getting away from this unless we hold that men who go to war are less liable to be shot than those who stay at home. Indeed, if consumption is contagious at all, and if its morbidity and mortality, as well as those of smallpox, are indices of the respective virulency of the two diseases, the former should be very much more contagious than the later, since it causes many more deaths.

As a further explanation of his views concerning the contagiousness of pulmonary consumption, he says that "as a matter of fact the crusaders, at least those whose statements may be regarded as authoritative, do not maintain that tuberculosis is contagious." Now with such wriggling, hot-and-cold-blowing apologies, we have become quite familiar during the last few years. To account for this rather sudden conversion there is good reason for believing that these authoritative gentlemen held their ears to the ground of their back yards recently, for such expressions were as rare as hens' teeth in the lingo of the original crusaders, those who gave the whole spirit to this movement. In fact such language would have been then called rank treason. Those men were fearless, bordering on recklessness, and they had no hesitation in declaring that this disease was most malignantly contagious, and that no one was safe from inhaling the fatal germ.

Will those late comers who are so "authoritative," and so anxious to now create an atmosphere in the public mind that consumption is not contagious, explain why up to three or four years ago the "tuberculosis exhibitions," and the "chamber of horrors," which displayed all the worst manifestations of this disease, and which drove many persons to a frenzied fear of it, were huckstered throughout the land, if not for the sole purpose of demonstrating its

fearful danger of infection? Let them also explain why these atrocious implements of dread were suddenly called off by the crusaders?

Whatever the excuses they may offer, the real reason is that the crusaders have been smitten with a troubled conscience. Fearful of the distractions which they wrought in the minds of the people by their unguarded oratory, it began to dawn on them that it was more politic to catch flies with sugar than with vinegar, and, regardless of the inconsistency, they swung to the other extreme, and we now frequently hear there is no danger from consumption, and that consumption hospitals are the safest places in the world for well people to go to escape this disease. This is done to convince people how safe such places can be made by disinfection, and by exercising proper preventive precautions. At the same time they conveniently forget to make it known that all the large consumption hospitals of the world were just as free from contagion among the well, before the almighty crusaders saw the light of day, as they have been since.

Dr. Robin says I am "a victim of statistics," and in place of resorting to such undesirable means to reach his own conclusions he prefers to take "a common sense view of the situation." I do not know that I am a greater victim of statistics than the banker, the actuary, or the man of exact science. No project or business can be carried on successfully unless it is reduced to a mathematical basis, and so far as I see statistics are just as vital to the proper interpretation of previously ascertained facts relating to physiologic phenomena, as they are in grounding safe business methods.

Why does Dr. Robin prefer a "common sense view" to statistics? Is it because statistics do not support his contentions? Possibly. In a somewhat supercilious vein he makes the following distorted reference to my statistics: They "show the decline of the tuberculosis death rate prior to the inauguration of the crusade: they show a slight increase for the last ten years—*ergo*—the campaign has not only proved useless, but, inferentially, is in some way responsible for that increased death rate." There is no inference about this, it is a dead certainty. If the Doctor remembers anything about the beginning of this crusade, he will recall the honeyed phrases which were handed out to the populace that in less than twenty five years this disease would be practically annihilated if the measures which the crusaders had up their sleeves would be put to the proof. They were put to the proof in practically all the large cities of this country between 1894 and the early 1900's, and since these dates there has been a general increase in the mortality of

this disease, while the deaths from general diseases have been gradually declining.

Whenever one event follows closely on another, especially when these phenomena are intimately associated and cover a vast area, are unexpected, and contrary to what was promised, it is legitimate ground for believing that the two stand in relation as cause and effect. At least this is a tenable explanation until the opposition gives proof to the contrary. It is also probably true that if the forces that have always made for the world's improved personal and public hygiene had not been active, although hampered by the crusade, the death rate from this disease would make a far worse showing.

There is nothing slow about these crusaders, for they claim everything within sight. They never tire of talking about swatting bugs as a means of ridding the earth of consumption, but also credit themselves "with most of the improvement in personal and public hygiene for the last twenty years." Among their great achievements in this line are the opening of bedroom windows, building of sleeping porches, teaching persons the benefit of air, introducing light into hundreds of windowless bedrooms, just as if people did not know the value of light, and were ignorant of the art of breathing air. How much these great improvements will do to stay the death rate of consumption is problematical. For it is well known that in the open country, where air and light are superabundant, this disease is more rife than it is in cities. The great miracle really is how the people managed to live before the crusade era, and how it came about that the decrease in the death rate of this disease happened to be actually eleven per cent. greater during the fifteen years immediately preceding the entrance of the crusade, than it has been during a like period since it is in operation.

They have also built sanatoria and hospitals, and Dr. Robin says he "could adduce all sorts of statistics showing results far superior to those obtained by Flint or Williams," which I quote in my article. I had an idea that Williams' statistics were the best of their kind on record, for they show that out of one thousand cases, including all stages of the disease, being treated during a period of twenty two years of hospital and private practice, eighty per cent. were living, and seventy two per cent. were capable of following their usual occupations at the end of that time. These results, to me at least, are extraordinary, and in order to ascertain where the above referred to superior curative statistics are published, I call on Dr. Robin to unfold his loaded hand and deliver the goods.

Dr. Robin charges me with being a reactionist, or a sort of a

standpatter. This comes with poor and ridiculous grace from one who prides himself as being an "authoritative" high priest of a system, the very vitals of which have been picked from the dregs of Naples' and Tuscany's rejected and putrid sanitary laws of a century and a half ago, and which are now hawked about the modern world as a new discovery. These are the measures with which they hope "to rid mankind of the plague."

I think I have shown good reason for believing that the present crusade is the greatest medical delusion of the twentieth century. If contemporaneous history of the first crusade asserts that it wrought no appreciable diminution in the mortality of this disease, that the injury which it inflicted in Italy was simply indescribable, and censures the medical profession for participating in it (although the later finally defeated it), what justification is there for the existence of the present imitation? Its operation of a hundred years ago may be vindicated on the plea that it was a new and untried measure, but no such defence can be entered for the present abettor.

Dr. Robin's paper is valuable in showing how far false logic, when once deeply impressed, may go in determining human conduct. He says the forced imprisonment of which I so vehemently complain "is no more an imprisonment than that to which we subject a patient with typhoid fever, who is not permitted to eat everything he wants, to get out of bed when he feels like it, to entertain visitors, etc. It is a restriction imposed by the disease and not by the physician."

The effort to shift the responsibility of imprisoning consumptives on the plea that this is compelled by the nature of their disease is too transparent to merit much consideration. It is merely calculated to throw dust in the eyes of the people. The Italians of a century and a half ago were impelled by similar ideas, and after enforcing them relentlessly for many years, were compelled to abandon them on account of the inexpressible cruelties which they perpetrated both on the sufferers of the disease and on their families. Now at this late day the hollow shelled doctrine called the consumption crusade, after being driven from pillar to post in everything it has ventured to undertake during the last twelve or fifteen years, artlessly proposes to inflict a repetition of this outrageous measure on the American people.

NEURASTHENIA AS A FACTOR IN LIFE

BY DAVID HYMAN, M.D.

New York

We often hear of a person being called a neurasthenic. What is a neurasthenic? I have heard and read many descriptions and definitions of the term, but there are a few words that, I think, may still be well added.

I would like, in speaking of neurasthenia, to compare it to a compensated cardiac lesion. In the latter case the heart does its work fairly well as long as the patient keeps quiet, is at rest, and under no physical or mental strain. But as soon as the patient undertakes any extraordinary work—extraordinary for the patient, not for a normal person—the heart fails in its function, and as a result, the patient is suffering from a decompensation, and unless proper treatment is early instituted, life cannot go on for any length of time.

A condition similar to the above holds true in neurasthenia. Not all of mankind are born with the same amount of nerve energy. Some are born with a less amount of nerve force. They are born with a mental decompensation, analogous to those that are born, or are suffering with, a cardiac decompensation. My personal belief is that the majority of neurasthenics are so hereditarily. A neurasthenic is *born* a neurasthenic. In him there is either an increased amount of nerve substance, or, the nerve substance that he possesses, though normal in quantity, is greatly over functioning. As a result, the neurasthenic feels more, he is more sensitive, and everything impresses him to a much greater extent than it does a normal individual.

What are the effects of his mental decompensation? They are the same as in cardiac decompensation. In the latter, as long as the patient leads a normal, quiet life, he will live fairly comfortably for many years, perhaps as long as he would have lived without the cardiac lesion. But let him go through any strain, overwork, excitement, etc., what do we see then? Soon the heart is decompensated. There sets in dyspnea, palpitation, cyanosis, edema of feet, cough, etc. These abnormal conditions arise from the fact that the patient has gone through an extraordinary strain, which his heart is not in a condition to meet. This same, and a much greater strain, could be met with very successfully by a normal heart. There would perhaps become temporary cardiac embarrassment, but the heart would soon make up the oxygen supply necessitated by the sudden strain, and soon return to its normal status.

The same condition holds true in neurasthenia. I again wish to

reiterate here my belief that most neurasthenia is either hereditary or congenital. Seldom it is acquired. If a person develops symptoms of neurasthenia years after birth, that does not indicate that he suddenly became a neurasthenic. He has had it since birth, in fact, before birth, but as long as he lives a life that is quiet, consists of routine daily work, without any worry or cares, fear or anxiety, he will be perfectly well, and not even suspect that he is a neurasthenic; on the contrary he will ridicule others that are so, and imagine that he would never be affected in such a manner. He thinks that in all shocks and failures, he would be brave, strong and cool headed. And so he goes on in life, perfectly happy, just like a person with a compensated heart lesion.

However, sooner or later, there comes in every one's life an event that is very shocking, as a failure in business, death in the family, illness, etc. How does the neurasthenic react toward this shock? He shows immediately the signs of a "broken compensation," i.e. begins to worry, broods over his troubles, cries, does not care to eat, does not sleep, becomes low spirited, depressed, despondent, full of fears and anxieties; is afraid of going insane or dying, says that there is nothing in store for him any more in life, wishes death to relieve his sufferings, etc., etc. This abnormal mental state persists for a long time, and if proper measures are not taken, the patient may drift into a worse condition, become hypochondriac, hysterical, develop melancholia, various neuroses, psychoses, and even one of the types of insanity. This stage of the patient's mind is the stage of mental decompensation, corresponding to a similar stage in a person with a valvular lesion. The treatment in either case is along similar lines, i.e., rest, physical as well as mental; whereas in cardiac affections we use digitalis to help restore compensation, in mental decompensation we employ such therapeutic measures as life in the country, travel, ocean voyage, psychotherapy, hydrotherapy, etc. In either instance the object of the treatment is to restore compensation to the affected part; whether it be heart or mind. I doubt very much whether compensation of the mind is ever as complete after the breakdown as it was before it, no matter how much therapy we employ.

The above mental shock in a nonneurasthenic individual produces very few of the above symptoms. This person is like a man with a normal heart who goes through a sudden severe physical exertion: for a while there is dyspnea, palpitation, etc., but soon, however, he regains his normal state. The same is true with a person with a normal amount of nerve energy; he is for a while gloomy, depressed, may be despondent. However, he soon regains his men-

tal equilibrium, reasons the matter out to himself, tries to correct it if possible, and is soon over the trouble and perhaps thinks of it occasionally in the future.

I want to consider now another point, and that is, the relation of the outside world to the neurasthenic. Is the latter to blame for his condition during the stage of the "acute mental decompensation"? Should we blame him for his melancholia, anorrhexia, insomnia, anxiety, fears, neuroses, psychoses, etc.? No, not any more than we would blame a patient with a cardiac decompensation; for his coughing, spitting blood, having palpitation, being cyanosed, etc. Just as the latter cannot help his physical state, so the former cannot help his mental state. Just as much as the symptoms of the latter are involuntary, and are only produced by his decompensated heart, so are the symptoms of the former to the same, and perhaps a greater, extent, involuntary, and are produced wholly by his decompensated mental condition. And just as much as the patient with the cardiac decompensation is taken care of, sympathized with, and treated scientifically, in accordance with the principles of medicine, so should the neurasthenic also be treated, and above all, sympathized with and encouraged; as that often helps more than any other known therapy.

Can we blame a neurasthenic for being a "coward," "weak minded," "feeble," having no "power of will," etc.? No, nor do I think that the nonneurasthenic, though he has gone through the same experience as the neurasthenic, deserves great credit or praise for his rapid mastery of his abnormal state. They have both acted in accordance with the condition of their organs of thought, action, energy, will power, etc., i.e., the mind. One's compensation is quickly restored and he soon gets back to normal; while the compensation of the other's mind takes a much longer time to restore; both are doing their best as is consistent with their mental condition, so why give one more credit than the other? Neurasthenia is a very serious factor in our modern civilization. I think that it is a condition that, due to the strain and stress of our present day life, is constantly on the increase. Due to the fact that it is the male of the family that has to earn a livelihood, I think neurasthenia is much more important when it exists in him. The woman stays at home, attends to the household duties, watches the children's welfare, etc. All this does not require any special will power or nerve energy, and even if she is neurasthenic, and many women are, it does not have such a great economic or very material effect on the welfare of the family. With the man the situation is different. He is the provider for the family and those that are dependent upon

him. When a shock, failure or misfortune strikes him, he has to rise to the occasion and face it bravely, fight it, and rise above the situation which confronts him. A nonneurasthenic person does not feel the shock as sharply and as painfully as the neurasthenic; to him, therefore, the shock is not as severe, and as a result he can, and often does, fight the situation successfully. But what about the person born with a mental insufficiency? This person feels more, he is a great deal more sensitive, his imagination extends much further, and the shock to him is much more severe. As a result, it takes him much longer to get over it, to say nothing of fighting the shock or failure successfully.

I consider, therefore, that neurasthenia is a condition that should be most seriously considered. In children it ought to be a great factor in choosing their future career in life. They—latter—should be made as quiet and as peaceful as possible, and not subjected to worry and strain. When discovered in youths, neurasthenia, when really severe, should be considered a serious factor against marriage, especially when in the male. The latter, if conscious of his mental insufficiency, should carefully consider whether he has a right to marry; just as much as a youth suffering with mitral insufficiency or angina pectoris ought to do the same before marrying. The neurasthenic, if he marries, assumes all the great responsibilities of caring for a wife and children. Will he be able to do so? Will he be able to face all the shocks, failures and misfortunes that befall a man, and fight them successfully? Will he be able to leave a healthy (mentally) posterity? Will not his children be very likely to be born with this mental insufficiency?

I just asked whether he will be able to fight successfully misfortunes, shocks and failures in life. But it does not have to be necessarily as above. It may be a trifle which the neurasthenic, due to the great amount of nerve substance so greatly exaggerates, that it appears to him a misfortune or a shock, or a failure. In my experience at the Bellevue Hospital, I have seen the life of a family ruined by the fact that the husband and father had acquired melancholia and was placed in the psychopathic ward. What was the cause of his loss of mental equilibrium? A mere trifle; the fact that he was getting baldheaded. Yet to this neurasthenic it appeared that his baldness was the result of syphilis, and in spite of the assurances of all doctors to the contrary, he kept on in this belief, which depressed him to such an extent that he became melancholic, and at the present time is an inmate of the psychopathic wards.

However, it is not only this type of man that I wish to consider. We find this similar condition in the higher walks of life. Neu-

rasthenia is much more frequent in the better and higher classes. It is amongst the more refined that the human side is shown more strongly, and it is there where the effects are better seen. It is there where the worries and cares of life, ambition, success and failure, happiness and misfortune, and all the higher feelings in life make themselves felt the most. I have known persons high in public life, doctors, lawyers, professors, politicians, who were highly neurasthenic. A professor of one of our great medical colleges once told me that he was on the verge of breaking down every second or third day. His practice made him so highly strung that he would sometimes break down in his office and cry like a child. Yet this man was one of the most highly esteemed men in the community, a man of great mental attainments, and a leader in his profession.

Very often indeed is the neurasthenic a person of very high mental attainments, most cultured, generous, sympathetic for his fellow beings, full of compassion for the suffering humanity, and a most worthy man. The lives of such persons are a succession of nervous breakdowns, little if any permanent happiness or satisfaction in life or its enjoyment; in fact, many of them are miserable throughout life. The above is especially true of the man who is constantly before the public eye, as the doctor, lawyer, statesman, etc. His actions are criticised by the public. If he is sensitive, he feels more the sting of criticism and failures; so much more painful when public, and, therefore it is so much more painful and difficult for him to fight life's battles successfully. It is he who is affected the most, and in this modern "survival of the fittest" he must naturally either overstrain his nervous system to keep up the fight which is beyond his power, or give up in great misery and chagrin an unequal fight of life.

What should such persons do? First, as I have already mentioned as to marriage: I believe that a person whose life is simple, quiet, peaceful; consisting of an ordinary daily routine, may, if not very neurasthenic, get married. However, the man in the public eye, whose life is a succession of ups and downs, failures and successes, achievements and disappointments, whose every action is known to the public, who is criticised, must be able to face the world and take all the praise, as well as all the criticisms, severe as they may be. If he is a neurasthenic, he cannot do this without great mental shocks and sufferings. As long as this man is in this plight he should not get married, as his mental suffering will greatly affect his wife and children.

What shall he do? My opinion is that such a person ought to choose a branch in his profession in which he could lead a quiet,

regular life, with as little worry and care as possible. He should be satisfied to a great extent with what he accomplishes and gains in life by a quiet and peaceful mode of living, and not strive to higher goals, as necessarily all men cannot reach their goals, and not being able to stand the painful shock of failure or disappointment, they should avoid a life that will bring them about. They should take on no burdens beyond their strength, nor strive too hard for the high towers of fame. Happiness in life is not measured by the position one holds; wealth, leadership in the community, or in the profession. It is not always the man who has climbed the mountain heights that is happy in life. It is often in the simple, lowlier planes of life that the way of peace, contentment and happiness is found for us, and for those we love, and the nobler end when the time for life has been spent.

INDICANURIA

ITS SIGNIFICANCE AND TREATMENT

BY STANLEY EISS, M.D.

Indicanuria is the abnormal excretion in the urine of potassium indoxyl sulphate or "Indican." It is derived from the indol formed in the gastrointestinal tract by the nitrogenous putrefaction that the nucleus of the indol group, tryptophan, contained in proteids, the tryptophan being converted into indol by the aid of putrefactive processes. Normally in the twenty four hours' excretion of urine, we find from $4\frac{1}{2}$ to $19\frac{1}{2}$ mg. of indican in which quantities it can hardly be determined by the usual tests.

There are numerous tests for indican, but the most satisfactory is as follows: To 5 c.c. each of urine and pure hydrochloric acid, add 2 c.c. of chloroform and one or two drops of peroxide of hydrogen. On shaking, the blue color due to the liberated indigo will be seen in the chloroform which settles to the bottom of the tube. Frequently the coloration of the chloroform is very slight, while the supernatant fluid is dark in color. The addition of 2 or 3 c.c. of alcohol—70 per cent. is perfectly good enough—and slight shaking will dissolve all of the indigo in the alcohol chloroform mixture, and a much more satisfactory test be obtained.

Preserved urines do not always give a satisfactory indican test. Certain drugs, such as salol, salophen, urotropin, iodine compounds and creosote, give reactions which must not be mistaken for it.

Indol (C_8H_7N) is almost always present in the intestinal tract, but it depends, first, upon its quantity, and second, upon the con-

dition of the gastrointestinal wall as to whether or not the indol will enter the circulation and be excreted in the urine. The indol absorbed from the intestinal tract is not excreted as such, but is first oxidized to indoxyl (C_8H_7NO) and then combines with sulphuric acid and appears in the urine as the potassium or glycuronic acid salt of indoxyl sulphate. In many instances urines rich in indoxyl sulphate are normal in appearance, but sometimes have a brown tint which is greatly intensified by exposure to air or by the addition of oxidizing agents. The color of the urine is ascribed to higher oxidation products of indol; the indoxyl sulphates are colorless compounds.

The basic cause for the more or less complex combination of circumstances with which indicanuria is practically normally found, is believed to be due to three important factors: (1) Rapid and excessive eating of proteid diet, especially meat. (2) Loss of muscular tone in both the intestinal and abdominal walls. (3) Disturbance in the normal secretory functions of the intestinal glands due, in all probability, to the toxemia caused by motor insufficiency.

Indicanuria may be divided into that originating from the extra intestinal and that originating directly from the gastrointestinal tract.

To the former belong those cases in which indican appears in the urine as a result of absorption of indol from various foci of suppuration in the body, viz.: furuncles, carbuncles, fistulae, purulent arthritis, empyema, putrid fetid bronchitis, gangrene of the lungs, necrosis, pelvic suppuration, chronic purulent cystitis, etc.

In the latter or gastrointestinal indicanuria, indican originates from the intestinal tract and is formed mainly through proteid decomposition. It is not, however, the quantity of putrid substances found in the bowel, but the quantity of these putrid substances entering the blood which causes the symptoms of autointoxication. This accounts for the fact that, on the one hand, we may find in cases of marked intestinal putrefaction many toxins in the stool but few only in the blood. Diarrhea, for instance, or mucous covering the intestinal mucosa, diminishes the passage into the circulation.

The above group could be divided into three distinct classes.

- (1) Accidental.
- (2) Recurrent.
- (3) Constant, also idiopathic or metabolic indicanuria.

(1) The accidental was observed in dyspeptics, in dysentery, peritonitis, achlorhydria nervosa, acute gastroenteritis, typhoid,

cholera, partial or complete obstruction of the bile duct. In circulatory disturbances as a result of mitral insufficiency, aortic stenosis, hepatic or nephritic disease.

In the cases of achlorhydria, which showed indican for a number of weeks after washing out the stomach with a solution of silver nitrate (1/100) and the appearance of the free hydrochloric acid, the indican naturally disappeared. Normal gastric juice is supposed, under normal conditions, to either destroy or at least diminish the number of bacteria which cause putrefaction, very often hyperacidity is quite frequently coupled with indicanuria.

In all gastroenterostomies, appendectomies, enteroanastomoses; in all operations, in short, in which the intestinal wall was cut, excessive indican with traces of bile was found in the urine for a week or more following the injury.

"Intestinal autointoxication" could be considered cases in which the examination of the whole body, the stomach contents, the feces and the blood did not yield abnormal findings, but in which indican appeared in the urine in excessive quantity.

(2) Cases which showed clinical symptoms directly referable to the gall bladder, appendicular region, gastric or duodenal ulcer, reflex hyperchlorhydria (Lichty), always showed indican; with the subsidence of the symptoms indican disappeared.

(3) Under the third group which is the constant excessive elimination of indican, without clinical gastrointestinal symptoms—idiopathic indicanuria, and is undoubtedly due to putrefaction products of the proteids.

The symptoms which most of these cases show are as follows: Foul breath, coated tongue, dry skin, acne, nervous irritability, malaise and drowsiness, fleeting pains. Anemia is very common in these cases, and it is often surprising with what a bound both the red count and the hemoglobin will rise when the toxemia is removed and indican disappears. It has been frequently noted that the severe anemias, chlorosis and pernicious anemia, are associated with indicanuria.

Some show no symptoms whatsoever. But those that present clinically the following symptoms: Pale complexion, cold hands and feet, dizziness, insomnia, nervous depression, headache, neuralgia, migraine, rheumatic pains in the extremities, fetor ex ore, furunculosis and urticaria can be considered as intestinal autointoxications.

Treatment of indicanuria is both dietetic and medicinal.

Dietetic.—Matzoon, lactose buttermilk, limited proteid diet, especially eggs, as they furnish more albuminous substances for the

culture of toxic microorganisms than any other foodstuff. Spices and highly seasoned foodstuffs must be limited to the lowest. Vegetables, fruits and farinaceous foods are especially beneficial.

Medical.—Regulate the bowel movements with blue mass; calomel once a week, and a saline cathartic for a short period daily.

Enteroclysis, especially the injection of one pint to one quart (500-1000 c.c.) of a 1:1000 acetozone solution, with the patient in knee chest posture, which should be retained for a short time.

The relief of ptosis of the abdominal walls and viscera is another important factor.

If there is one thing well established in therapeutics it is that all intestinal antiseptics of a chemical nature are a delusion and a snare. Even with the administration of such chemical agents as salicylates, naphthol, benzonaphthol, betol or even calomel, allowing that they might in a very small way interfere with the increase of the microorganisms, we can never hope to administer sufficient to make twenty or more feet of intestinal tract antiseptic. Again, we are limited in the administration of even a single dose, for fear that the drug administered may prove more poisonous than the toxins.

We should be very thankful to Professor Metchnikoff for placing in the hands of the medical profession the "*bacillus Bulgaricus*." This bacillus, when taken internally in its pure culture, is a most potent agent in destroying all the flora of the intestinal tract which are capable of giving rise to intestinal putrefaction and toxic absorption.

I maintain that an examination of the urine for indican is at least as important as the testing for albumin and sugar, and that points of decided importance, not only in diagnosis, but also in treatment, may thus be gained.

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JOHN W. WAINWRIGHT, M.D., EDITOR

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JOHN W. WAINWRIGHT, M.D.
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EDITORIALS

THE TREATMENT OF SPIRIT AND DRUG NEUROSES

In 1809 the late Dr. Rush, of Philadelphia, published a small volume calling alcoholism a disease, and asserting that it must be treated by medical men, the same as other diseases. This was the first statement of this fact in America by an eminent medical man. The idea had been mentioned long before in the earliest Grecian times, and this was a restatement in the new century.

Over half a century later it materialized in the first institution in the world for the treatment of inebriates, at Binghamton, New York. From that time it has been an organized fact, studied and promoted in various ways along scientific lines, until today it is incorporated as one of the great truths of modern medicine, namely, the inebriate and the drug taker are suffering from a neurotic disease, which is curable as other diseases are. There is a distinct origin, progress, development and termination of these maladies, which can be studied and outlined with as much certainty as any other disease.

Probably the quacks have done more than the regular profession to bring this idea into prominence, by their claims of specific remedies. At all events, they have called attention to the physical character and causes, and possibilities of removal and prevention, which has stimulated inquiry and examination. While this has failed to

confirm their theories of specific cures, it has brought out a great mass of facts and suggested means and measures along different lines of work.

A few scientific students in this field have pointed out a range of causes of which heredity, traumatisms, exhaustion, toxemias and a great variety of degenerations culminate in the desire for spirits and drugs, and the taking of these are symptoms of conditions as well as active causes.

The real condition is that of exhaustion, physical and psychical pain and poisoning, for which spirits and drugs are used for their anesthetic effects. They cover up these symptoms and delude the victim with the sense of health and vigor. The effects of narcotics are well known, but about alcohol and its action on the organism, there is an immense literature that only recently has taken on a scientific aspect, and here the work in the laboratory has brought out the fact that alcohol is an anesthetic and depressant, and that its pleasurable effects are due to this and nothing else.

Our modern life, with its increasing strains and drains, calling for higher mental activities, is followed by greater mental and physical exhaustion, and for this alcohol is a most grateful relief. Drugs follow where the symptoms of greater debility appear. Alcohol and its action on the organism is so engulfed with theories and prestiges and delusions of the past, both in medical and lay literature, that the real truths are still struggling for recognition.

In all probability the number of neurotics of this class is increasing and constitute a new field for practice, which has been scarcely touched as yet. The evidence of curability is beyond question, and the teachings of experts that there is an early stage in which these drink and drug neurotics could be most practically treated and restored, is verifiable in almost every section of the country.

The treatment is not only a recognition of the physical nature of the maladies, but of the distinct causes, both physical and psychical, which are active and predisposing. A knowledge of these gives distinct intimations of how they can be removed, restrained, or destroyed. This will reveal certain distinct physical influences, physical and psychical germ causes, which will end in drink and drug neuroses with the same certainty, that typhoid or consumptive

germs produce disease. Sometimes they are very complex and seemingly depend on nutrition, mental surroundings and conditions. At others they are clearly the product of well defined causes.

Physicians of all others are most competent to determine and apply curative means and measures. Clergymen and reformers and teachers all fail from want of knowledge of the real conditions.

Such persons are physically diseased and mentally deteriorated. Restore the physical condition, and the mental will change. For recent cases the family physician is in a position to give special local treatment. For the persons in the chronic stage, institutional care is required. After this treatment they should return under the care and direction of the family physician.

There can be no doubt that armies of young men and women who are called moderate drinkers, and who take drugs for trifling troubles, could all be cured successfully if they would realize their danger and appeal to the family physician.

Many of these persons recover without help, but a vast majority go on to chronic conditions, and become hopelessly degenerate, dying from all sorts of organic diseases.

The chronic cases who become great burdens to their friends and the community can be forcibly housed and treated, and can be made self-supporting, and many of them restored permanently. This is also a demonstrable fact. The claims for specific drugs and remedies to break up the drink craze are as empirical as if they were made of cases of insanity.

While there are general facts which apply to all these cases, there are certain special conditions which require recognition, and are peculiar to each individual case. Careful studies show that every person suffering from these maladies is more or less curable, depending on the exact knowledge of the causes and conditions, and the application of exact measures and means.

If the inebriate and drug taker were studied as the consumptive or typhoid fever case, curability would be the rule and not the exception.

This is the great new land for medical men, but they must first drop all theories and preconceived opinions that have come down

from the past from the fathers, and in the textbooks and study the cases along the lines of exact scientific facts and their meaning.

It is a sad reflection on the medical intelligence of today that the quacks and the moralists are making such herculean efforts to rescue this ever increasing army of neurotics, while the profession, to whom the subject rightly belongs, and who should of all others be the teachers and leaders, stand by indifferently.

T. D. CROTHERS.

AIDS TO SUCCESSFUL TREATMENT

If the physician could be assured of the potency of a remedy in individual cases; if therapeutic agents would produce identical physiological or pathological results in every case of a like disease, practice would be so simplified that experimental medicine would not need a place in therapeutics. But so many factors exist whose presence is not always demonstrable or even suspected, that medicine has been and will in all probability remain largely empirical. The possibility of an exact diagnosis is not always in evidence, while treatment without an accurate diagnosis becomes symptomatic. Even with a positive diagnosis, the individual carries so many vagaries that treatment is largely experimental. The question of the personal element present which influences the receptivity of or resistance to medicinal agents; perverted metabolism, environment, reactions of body or tissue fluids to chemical changes, thus altering the character of reactions from remedial to toxic effects as so often results, necessarily makes the administration of therapeutic agents uncertain. It is not the rule to encounter typical cases of disease; the subjective symptoms may be obscure resulting in a false diagnosis and consequent inaccurate treatment. In fact the diagnosis is often unknown until autopsy discloses the truth. It is true that modern and improved methods of study of etiology has largely helped to a more correct diagnosis, and this in turn to a more accurate treatment; while autopsies have helped to make more clear prognosis. Have we, however, an interest in prognosis, that we should have in diagnosis and treatment? The laboratory has helped us to a better understanding of pathology, as well as physiology, diagnosis, and treatment, but is it not true that a personal contact

with the disease, observation of reactions to remedies, a personal study of each individual case is what helps us to a more successful treatment? The best equipped practitioner avails himself of help from all sources, adjusting his findings to the individual under treatment; does not rely on routine treatment as given in the text books.

FASTING AS A THERAPEUTIC MEASURE

Fasting has been empirically used as a therapeutic measure since the early dawn of history. In instances it has been practiced for notoriety or profit, as in the case of one Tanner some years since, as well as by others, some of whom it is claimed went without food for a period of forty days. Fasting has also been studied scientifically and many observations made which have helped to clear up points in the functional and organic processes of digestion and elimination. Tanner's experience proved to us that an average man may live for weeks without foods and not suffer ill health thereby. In fact, numerous advantages follow a reasonable fasting in many complaints. It has been claimed that more persons die from over-eating than from starvation.

In the so-called biliousness: malaise with its accompanying constipation, headache and indigestion; with coated tongue, torpid liver, etc., fasting will be found more serviceable than medication in bringing relief. In gastric fermentation with putrefactive changes, the undigested food furnishes material upon which microorganisms feed and multiply. Unless the stomach contents are gotten rid of thorough lavage, or emetics, and the intestines by enema or cathartics with fasting, there results the so-called autointoxication. After a thorough emptying of the stomach and intestines a period of fasting is advised to allow these organs to adjust themselves to their proper functions. In diarrhea, or constipation, conditions will invariably improve with fasting. In febrile affections a wise procedure is to refrain from food for several days, giving only an abundance of pure water. In disturbed metabolism, food should be withheld. Food in fact should never be allowed when it will not afford nutrition through proper digestion and assimilation.

The appetite does not always serve as a safe guide for the ad-

ministering of food, as there is often not only an abnormal craving for food, but of substances that are useless for nourishment, if not positively injurious. This is witnessed frequently in dysentery, typhoid, dyspepsia, diabetes, hysteria, melancholia and in pregnancy.

Water can be freely used while fasting. It flushes the alimentary tract, promotes secretion and excretion, equalizes to a greater or less extent blood pressure, favorably influences temperature in fevers, and allays the craving for food.

There will be found determined opposition to the physician's orders to refrain from food of any kind for a considerable number of days, but when the procedure is deemed expedient, it should be insisted upon that instructions be literally carried out.

HEALTH

Health stands for faith—faith in life, in nature, in one's self, and in all others; faith in one's fellowmen. As faith is magnetic and generative, it has power to start processes of its own nature in the consciousness of the faithless, thus finding faith where an unhealthy negative, skeptic appreciation of life would meet only treachery and deceit. Health is success, is progress, is exhaustless reserve force. Physically it means stability, mentally it means conquest, morally it means redemption. The man who enjoys health on all planes is a monarch, a hero, a prophet, and his mission, like that of Hercules, is to lift the sphere of panting wrestling human life up to the evolutionary fulfillment and spiritual destiny of an Olympus. Health is character, health is manhood, health is sanity—a column of unshakable guarantee in the political, social and civic edifice.

COLD AND APPETITE

As everybody knows, there have been devised various methods whereby exceedingly low temperatures have been obtained.

While arctic regions provide some fairly cold weather—say, sixty or seventy five degrees below zero, Fahrenheit—the scientists have been able to surpass nature's achievements in this line, and when they wish one hundred and fifty or two hundred and fifty degrees below zero they can obtain it. How this is done it is unnecessary

here to state. It is interesting, however, to note the effects of such low temperatures on animal life.

Dogs, when introduced to such an environment, withstand it well, provided they are covered in blankets and wool and provided the experiment is of short duration. But a curious fact is that when they emerge from such a temperature they are fearfully hungry.

Having seen that dogs stood the experiments well, one experimenter tried the effects of intense cold upon himself and went down into his "cold pit" carefully dressed in warm clothing and furs. The temperature was maintained steadily at one hundred and ten below zero, Centigrade—one hundred and sixty six, Fahrenheit.

After four minutes the experimenter felt very hungry, and was more so when he put an end to the experiment, coming out of the cold after eight minutes. He took a hearty meal and enjoyed it thoroughly, and this seemed all the more strange, since for years he had not known what it meant to be hungry. Appetite had been a word without meaning to him, and the digestion of each meal was commonly such a painful process that he ate very little, and never enjoyed it.

He repeated the "cold experiment" daily for a week, and, after eight cold baths of eight or ten minutes each, his pain and distress after eating vanished. Appetite was restored and digestion became painless.

GASOLINE AS A THERAPEUTIC AGENT

Stephens, *Dublin Journal of Medical Science*, enumerates many uses to which ordinary gasoline may be put. In pediculosis capitis it is the remedy par excellence, not only terminating the life of the parasite, but having a solvent action on the larva as well. In alopecia areata it has proved useful; in ringworm and in scabies it succeeds where other remedies have failed. Its great penetrating powers, together with its solvent properties, make it useful in many skin affections. Burns of all kinds and especially those produced by spluttering of hot metal, such as steel, copper, or from spelter works, are greatly benefited by the early application of gasoline. At the author's suggestion, several of the works in his district keep a quantity of gasoline ready at hand which is used as a spray, blown

onto or into the wounds, which are then covered with a dusting powder of iodoform, salicylic acid, and boric acid. Its application as a spray is cleanly, which in the case of cuts, is of especial value, as it allows of the stitches being put in at the surgery without further preparation. The value of gasoline in burns is, in the author's opinion, due to the fact that it destroys all germs that have been conveyed from the filthy clothes to the wound, and at the same time interferes with the broken down, half burnt skin cells, from which enzymes have been set free. These enzymes, being closely related to ptomaines, are undoubtedly responsible for the poisoning which always takes place in metallic burns, prolonged by the process of healing for weeks. The author adds the necessary word of warning as to the inflammable nature of gasoline.

THE PROBLEM OF THE GERM CARRIER

From the public health standpoint much interest has centered around those individuals who, all unconsciously, scatter the germs of disease and death broadcast. Whether he has or has not suffered from a particular infectious disease, the chronic germ carrier who bears in his alimentary or his urinary tract the microorganism of that disease is a distinct source of danger to the community. In regard to the milk supply, for instance (*The Medical Press*, July 8, 1914), it has been shown that outbreaks of infectious disease have occurred from time to time as a result of the employment of persons who, if not actually convalescent from enteric fever, have nevertheless been carriers of the bacillus typhosus. It is just in relation to cases of this description, as has been pointed out by a standing committee of the House of Commons to discuss the Government Milk and Dairies Bill, that greater powers of inspection should be provided. The subject was also referred to last week in a lecture before the Royal Institute of Public Health, by General L. Vaillard, the President of the Board of Health of the French Army, who gave an apt illustration of the danger of disease carriers in the case of a certain cook, a chronic typhoid carrier and also a carrier of the bacillus of Gaertner, who was said to have been responsible for five epidemics of enteric fever in nine years, having been engaged in the preparation of ice creams for wedding parties and banquets. In

the case of diphtheria it is well known that the bacilli are carried in the fauces of healthy individuals in times of epidemics of that disease. Segregation would appear to be the only efficient way of dealing with disease carriers, but the difficulties of bringing the cases under the control of health authorities are, at present, very considerable. It is bad enough to get people to submit to a medical examination when they are ill, but when they are apparently in good health it is doubtful whether they could be made to present themselves before a physician or a bacteriologist for inspection, except under penalty of the law.

SUGAR FROM SAWDUST

In the course of a paper read before the London Royal Society of Arts, A. Zimmerman described a process by which sugar might be manufactured from sawdust.

In its natural state, he pointed out, wood contains no sugar, but when sawdust has been subjected in closed retorts to digestion with a weak sulphurous acid solution under pressure of six to seven atmospheres, a very remarkable transmutation takes place, as much as 25 per cent. of the material being converted into sugar. In this Zimmerman claims that we have a valuable feeding stuff for horses, cattle and sheep.

Draft horses in whose daily ration four pounds of "cacchulous-molasses" were substituted for four pounds of oats were kept under observation for seven months, and were all found to have increased in weight, while a colt which was in so weak a condition that veterinary surgeons advised its destruction, put on 260 pounds in six months, and is now in excellent condition.

The food has also been tried in a large Durham colliery, with the result that it kept the pit ponies and horses in good and hard condition. Many other uses, it was suggested, would be found for this converted wood—for example, in the manufacture of explosives, of margarine, of synthetic rubber, and, in virtue of its characteristics as a nonconductor of heat, as packing for refrigerators, incubators, ics chambers, and so on.

DIGEST OF CURRENT MEDICAL LITERATURE

Lobar Pneumonia.—*New York Medical Journal*, May 30, 1914. The fiftyfour cases of lobar pneumonia cited by Cornwall were treated by a special method. A point in the hygiene which is considered of importance is to temper the cold fresh air to the afebrile patient. During the febrile period of a well-marked lobar pneumonia, Cornwall, says, the fresh air should be cold, but in the aged and in cases with little or no fever, and always after defervescence, the patient should be kept warm and should be protected from drafts. Careless exposure of the patient when he has no fever may be responsible for complications.

A particular and essential feature of this treatment is the regulation of the diet along the following lines: The quantities of protein and fuel given are less than the minimum health rations; the diet as a whole is nonputrefactive, and it includes a sufficient quantity of the food salts needed by the body, especially the calcium salts, of which a deficiency regularly exists in pneumonia. The purpose of this diet is to supply nourishment sufficient to carry the patient through the short period of this disease with a minimum of trouble from the alimentary tract, that region of special danger in pneumonia, whence may come general poisoning, vasomotor paralysis, nervous disturbances of the heart through reflexes and mechanic disturbances from distension.

Another essential and characteristic feature of this treatment is extreme caution and reserve in the use of cathartics. Castor oil or some other vegetable cathartic is preferred. The popular calomel and Epsom salts are looked on with disfavor by Cornwall, and he believes that the administration of that combination at the beginning of a pneumonia or any time in its course may add materially to the gravity of the prognosis. In this treatment, after the initial gentle purge, simple or soapsuds' enemas are given every second day if the patient is in good condition, until the expected time of the crisis, which is taken to be the fifth day of the disease; after that time, or at any time if there are signs of heartstrain, the bowels are not disturbed.

The treatment of symptoms, according to this method, is distinguished by conservatism. If there is severe pain in the early period of the disease, preventing necessary sleep, morphin or codein is given in moderate doses; but later in the disease, and especially

near the time of the crisis, and at any time if there is much respiratory embarrassment, opiates are strictly avoided. Hot poultices are sometimes applied for severe thoracic pain. For relief of restlessness, sodium bromid is the preferred drug. If delirium incites the patient to get out of bed, physical restraint is strictly enforced. If there is gastric irritability or diarrhea or tympanites, reduction of the diet is the only treatment given. The diet may be reduced to peptonized milk and barley water alone, or barley water alone, or water alone, with the food salts. If stimulation of the heart is needed, it is given according to the following plan: In the aged, in alcoholics, and in patients with preexisting myocardial disease, it is given from the beginning. In young adults with originally healthy hearts it is usually delayed until signs of heartstrain appear, which is generally not later than the fourth day. The first stimulant given is strychnin sulphate, in doses of one sixtieth grain three to six times a day. If more stimulation is needed, tincture of strophanthus is given in doses of one and a half minim every four hours. The strychnin sulphate is increased on occasion to one thirtieth grain every four hours, which is the maximum amount of that drug permitted in this disease, and the strophanthus to two or three minims every four hours. In a large majority of cases, Cornwall states, more than this stimulation is not called for, but if it should be required, caffein citrate in doses of 1 to 3 grains every four hours is added. In cases with extremely low blood pressure, epinephrin is given, hypodermically or by mouth. If there is an obstinately dilated right ventricle, digitalin is given hypodermically, in addition to the other heart stimulants. For extreme dilatation of the right ventricle threatening disaster, Cornwall believes venesection to be indicated. Whiskey, in small doses, is given to alcoholic patients, and to the aged if they bear it well.

Colloidal Sulphur in Chronic Rheumatic Affections.—Albert Robin and L. C. Maillard, in *Bulletin de l'académie de médecine* for November 25, 1913, call attention to the fact that, whereas washed and precipitated sulphur is insoluble in water, and therefore uncertain of absorption and effect, colloidal sulphur is very readily absorbed from the alimentary tract, and at once takes part in these metabolic changes having to do with sulphur containing substances. Introduction of sulphur into the system is thus rendered possible in all conditions associated with imperfect utilization or excessive output of sulphur, e.g., in certain skin affections, in diseases of the cartilages, which contain chondroitin-sulphuric acid, and in disorders of the mucous membranes involving secretion of a large

amount of mucus, which contains 1.4 per cent. of sulphur, e.g., in chronic pharyngitis, bronchitis, vaginitis, etc. The procedure followed in preparing colloidal sulphur is to pass hydrogen sulphide into a solution of sulphurous acid; flakes of sulphur, temporarily insoluble owing to the acidity of the solution, but not coagulated, form at the bottom of the vessel a deposit which redissolves at once in distilled water after the acid solution has been poured off. Dialysis of the solution of sulphur thus obtained, to remove the remaining traces of acid, completes the procedure.

The authors refer in particular to the results obtained in two cases of chronic rheumatism. The first showed the possibility, with the sulphur treatment, of cutting short an oncoming chronic rheumatic state following attacks of acute rheumatism in a patient with rheumatic antecedents. This patient was completely relieved, resuming his previous occupation in three months, in spite of several interruptions in the treatment. The second case was one of painful and deforming rheumatic polyarthritis, of three years' standing, the patient being confined to bed and unable to move. After five months' treatment he was able to walk, and later regained the use of his upper extremities sufficiently to dress and perform useful work. Other similarly encouraging cases are spoken of.

The solution of colloidal sulphur employed contained 0.2 gram of sulphur to every fifteen c.c., and was given in doses of one teaspoonful before breakfast and supper, gradually increased to one tablespoonful. The only untoward effect of the remedy was slight diarrhea, which appears upon excessive doses or prolonged administration, and passes off promptly when the sulphur is discontinued. The solution may be rendered more palatable with sugar and some aromatic preparation. Sodium salicylate, having no effect on the pain or in preventing recurrence of subacute attacks, may be advantageously replaced, according to the case, with quinine sulphate in the dose of five grains (0.3 gram) twice a day, or sodium amidomethane antipyrinsulphonate in the dose of fifteen grains (one gram) four times a day. Wet dressings of lead and laudanum, or 10 per cent. ammonium chloride solution, systematic massage, and progressive mobilization of the joints are useful adjuncts to the sulphur treatment.

Habitual Constipation.—M. Einhorn, *New York Medical Journal*, states that the importance of autointoxication has been exaggerated. Dunin, of Warsaw, was one of the first to emphasize the fact that nervous phenomena, said to be caused by autointoxication, are not due to constipation, as such, but, quite the reverse, bring on the

constipation. Constipation may develop as the result of the suppression through hurry or inconvenience of the normal daily desire which is developed by training. Constipation may arise in otherwise healthy people through medication. Habitual constipation may be developed through dieting. Constipation can develop from a lack of fluids. One theory regarding the etiology of constipation is that the muscle of the bowel is thinner than normal, i.e., it is congenitally abnormal. Another theory is that constipation may be due to an abnormal position of the large bowel, either to a kink or a ptosis, or a too long colon. Adolf Schmidt brought out a new point, namely, that habitual constipation may be due to a better process of digestion and assimilation, so that there is very little fecal matter remaining. The author does not quite agree with him with regard to the general acceptance of this theory. While it is true that in habitual constipation the bulk of fecal matter is diminished, the absorption is very good, perhaps too good. This is not the cause of the constipation, but rather the consequence. In the treatment of habitual constipation the first point is to reassure the patient, and tell him that constipation is not such a great misfortune. One should try to interfere as little as possible, and to bring back the lost habit of daily regularity. The diet should be arranged to facilitate the bowel movements. This is done in the majority of cases by giving bulky foods, fruit and salads that contain a great deal of organic acids and cellulose, matter which is not digested, bulky foods serving to bring more efficient peristalsis. Enough water should be given to the patient. Butter should be used freely. The author has prescribed a combination of phenolphthalein and agar, containing 3 per cent. of phenolphthalein, and taken twice a day, or sometimes three times a day in teaspoonful doses. One advantage of these agar preparations is that the remedy in the agar does not come out quickly from the agar substance, but is absorbed slowly through osmosis, and in this way covers a large area of the intestine. A teaspoonful to a tablespoonful of liquid paraffin given twice a day acts well in some cases. There are physical means of treatment, hydrotherapy, exercise, massage of the abdomen, etc. Electricity has been successfully applied.

Deaths Proved Not Due to Antityphoid Vaccine.—Dr. S. S. Goldwater, Commissioner of Health of New York City, *Journal American Medical Assn.*, June 13, 1914, has rendered a great service to medicine and the public by causing an investigation of deaths and severe illness reported in the newspapers as due to antityphoid vaccine. According to newspaper statements, Clarence E. Pantzer,

a private in the National Guard of Brooklyn, died as a result of injection of antityphoid vaccine. The army surgeons who made the inoculation claimed that the death was not due to this cause. After a protracted dispute, in which Health Commissioner Goldwater recalled a burial permit previously issued, an autopsy was performed under the direction of the coroner, which showed that death was caused by malignant endocarditis. No evidence of typhoid fever could be found in the postmortem examination. In another instance, two children were inoculated with the vaccine, at the request of their father, who was at the time sick with typhoid. Marked and severe symptoms later occurred, which were immediately credited to the injection of the vaccine, and the statement was made that the children were suffering from blood poisoning. Thus the following statement appeared in a number of newspapers simultaneously:

"While militiamen in many States of the west are being immunized against typhoid fever, two children in New York are near death as a result of typhoid serum injections. Their mother, brother and aunt are recovering from an attempt to immunize them."

In this instance, as well, Dr. Goldwater ordered a thorough investigation, and it has now been shown definitely that both children are suffering from typhoid contracted, without any doubt, prior to the administration of the vaccine. In one case, owing to the pressure of an accumulation of cerebrospinal fluid, the disease closely resembled the epidemic form of meningitis; thus confusing still further the symptoms and making very difficult the diagnosis. In speaking of these cases, Deputy Commissioner Emerson emphasized the fact that typhoid vaccinations are both harmless and efficacious. "According to the department's records, most of the secondary or direct contact cases become infected while the physician is waiting for more definite symptoms in the original case. In the presence of any illness, even remotely suspected of being typhoid fever, prompt immunization of every member of the family is of great advantage. Those who develop the disease after immunization invariably show evidence of having contracted the infection before the immunizing injection."

Iodine Treatment of Gonorrhoea in Women.—In gonococcal infections of the lower genital tract, Hartz, *American Journal of Obstetrics and Diseases of Women and Children*, York, Pa., April, 1914; *J. A. M. A.*, May 2, 1914, says iodine is a valuable agent in the treatment. It offers a more rapid, more thorough, and a more

permanent improvement in the patient's condition than most other methods commonly in use. Gonococci disappear early from the secretions; intrapelvic extension is far less frequent; the use of the cautery and strong caustics is obviated, and hence less scarring results. The constitutional condition of the patient improves as a result of the early cessation of the profuse discharge. The rapid improvement and lack of pain noticed by the patient encourages her to continue with the treatment. The entire course of treatment is of comparatively short duration, and but little burdensome to the patient and physician, and lends itself readily both to dispensary and private practice.

Of twentyfive cases that comprise Hartz's series, eighteen patients were cured, after treatment from four to ten weeks. Two of the remaining seven cases were markedly improved, but still showed a few gonococci in the discharges from the cervix, the source of which, in all probabilities, was reinfection from the husband, who also had gonorrhea, or possibly from the Fallopian tubes, with patulous uterine orifices discharging the contents into the uterine cavity, and hence through the cervix, or from the deep cervical glands beyond the reach of local medication. Of two patients who complained of intrapelvic symptoms, prior to the commencement of treatment, both were subsequently operated on for chronic salpingoophoritis, though the local condition of the lower genital tract had cleared up. The other three cases that showed improvement were under treatment from four to five weeks, but drifted away from view, and treatment was discontinued. One patient developed symptoms of intrapelvic involvement shortly after applications were begun, but with expectant treatment and rest in bed her condition soon improved. Three of the eighteen patients that were cured had abscesses of Bartholin's glands, which required incision and drainage.

The dilatation of the urethra by means of Hegar's dilators with light massage of the foicles over the dilator and with subsequent instillation into the urethra of the following solution: iodine (crystals), gr. v; albolene oz. i, greatly enhanced the restoration of the parts to normal. The solution was retained in the canal from three to five minutes. The dilator, if covered with Finger's ointment, is also of value in these cases. Under the above outlined treatment, the thick and copious yellow discharge soon disappears, and is replaced by a thin, whitish, watery secretion, in which gonococci are absent. A solution of zinc sulphate and alum, one teaspoonful of each to two quarts of water, used as a douche twice daily, helps to limit the latter discharge.

Filling and Emptying of the Heart in Work and Rest.—G. F. Nicolai and N. Zuntz, *Berliner Klinische Wochenschrift*, May 4, 1914, have studied these problems by means of an ingenious adaptation of a specially constructed treadmill and an X ray apparatus so arranged as to permit of the photography of the heart at different stages before, during and after work. It may be accepted as certain that all changes in the size of the heart which take place suddenly must rest upon alterations in the blood content of its cavities. In the normal condition of rest or ordinary activity the heart never completely empties itself. During work the size of the heart is slightly increased, owing to an increase in the amount of blood contained in its cavities. This enlargement occurs very promptly after the beginning of exercise and is most probably due to the action of the skeletal muscles and an increased aspiratory action of the deepened and accelerated respiratory movements. Such an increase in the size of the heart is not an indication of any insufficiency, for it constantly occurs in perfectly normal individuals. Within a few seconds after the cessation of work the heart decreases in size to a point below its normal during rest. This is the result of a more complete emptying of the ventricles after exercise than occurs under average conditions. The action of the heart can neither be so accelerated during work, nor so slowed after it, that the heart will maintain its normal size. Although the actual changes in the measurements of the shadows of the heart under the conditions of the studies were relatively slight, if the changes in the heart volume are calculated from these, they will be seen to be quite large. Thus the diastolic content before work was found in one case to be 280 c.c., during work it rose to 310 c.c., and after work it fell to 220 c.c.

Gait in Nervous Disease.—D. W. C. Jones, *Practitioner* (London), January, 1914 (*The Archives of Diagnosis*, April, 1914). The tabetic depends entirely on his sight for equilibrium, wastes force by throwing the limbs too high and bringing them violently onto the ground, and assists balance by walking on an abnormally wide base. A patient with cerebellar disease cannot control the harmonious action of opposing groups of muscles, although quite conscious of his position; he, therefore, adopts a wide base, and his gait is reeling, because he has to attempt to recover his balance when some ill regulated contraction pulls his center of gravity to one side. If the lesion is unilateral, his inclination is toward the injured side. The hemiplegic has rigidity of the whole of one side, and the affected leg is abducted and extended so that the body

must be inclined over to the sound side and the injured limb circumscribed. A diplegic with the same condition on both sides must do the same with both legs, producing the "scissor gait." A paraplegic patient with less abductor spasm takes short steps, scraping the toes, but without crossing the legs. A subject of peripheral neuritis, with paralysis of the dorsoflexors and drooping at the ankle, has to flex the knee and protect the hip so as to lift the dropped foot clear of the ground, thus producing the "steppage gait" gait. A patient with paralysis agitans, with rigid limbs and a stooping posture, has to run after his center of gravity with the short steps characteristic of the "festinating" gait.

Strychnin-Tuberculin Treatment of Tuberculosis.—Whelan, *British Medical Journal*, London, May 16, 1914, gives strychnine injections to all kinds of tuberculous patients, including cases in which tuberculin injections are contraindicated, with the best results. He gives strychnine in acute and chronic cases, in the pyrexial and the apyrexial, in the early stages and in the most advanced, and with invariably good results. It always improves the appetite and general condition. Patients who have a loathing for food soon regain their appetites under its influence. Strychnine, Whelan states, will frequently do away with the painful necessity of adopting gastric lavage and over alimentation. But the drug must be given by intramuscular or subcutaneous injection, preferably the former. Administered by the mouth, it has not the same effects, and in large doses will cause tormina and diarrhea, with possibly disastrous results in advanced cases. These effects are never produced by the injections. Hemorrhages from the lungs, Whelan says, are found to be no contraindication for the strychnine injections. He has given them in such cases with remarkably good effects when the circulation had been quieted by morphine. The following is the solution he invariably uses: R; Liquor strychnine hydrochlorid (B. P.) 100 minims; sterile normal saline solution made with camphor water, add to make 400 minims; Signa: 1 in 400 strychnine solution. Dose, 18 to 25 minims.

Treatment of Malignant Neoplasms with Tumor Extract.—Lunckenbein, *Münchener Medizinische Wochenschrift*, May 12, 1914, used tumor extract in forty cases of sarcoma and carcinoma, and thinks it a valuable therapeutic agent. He demonstrated that the invading cells absorb the nourishment intended for the invaded host by virtue of a ferment which they possess. In addition to robbing the organism of its nutrition, they cause harm by giving

off into the system the products of their metabolism (possibly also of their secretory activity) and those of the breaking down of the invaded tissue. The organism defends itself by the production of a ferment, and a battle is waged. In most cases of carcinoma the ferment produced by the organism is insufficient to combat the invading cancer cells, and after a more or less prolonged struggle the patient usually dies. When tumor extract is injected into a patient having sarcoma or carcinoma, it causes these specific ferments to be formed, and the patients usually show rapid improvement. The size of the tumors is affected; they become smaller and lend themselves more readily to operative treatment. After a time, however, the improvement is not as rapid and as marked as at the beginning. The danger of an aphylaxis can be disregarded, as cases have been treated with large doses after intervals of eight to twelve weeks and showed no bad effects.

Relation of Divorce, Accidents, Crime, etc., to Mental Defects.—S. Block, *Medical Record*, July 4, 1914, endeavors to show connections between mental deficiency, divorce, alcoholism, insanity and accidents. Illegitimacy is a cause of mental defect, and weakened judgment is undoubtedly hereditary. Alcohol, and perhaps some other drugs, have a definite connection with mental defect. As regards accidents, when a person does not know whether it is better to go backward or forward in order to avoid an accident, and gets caught for the mistake, it may mean that he has not responded quickly to a stimulus which surely was important to the individual concerned. To take hazard risks is not always a sign of mental deficiency, but to take such a chance without careful forethought is a sign of lack of judgment. One of the most interesting points in connection therewith is that the same individuals meet with frequent accidents. Of 112 persons interrogated in four semi-private hospitals, 46 had had a previous accident, 32 had had more than one previous serious accident, and 12 had near relatives who had been in hospitals on account of some injury. Block is unable to recall a single instance, out of possibly 40,000 or 50,000 examinations, in which an undoubted defective did not have a scar from some accident.

Vaccine and Serum Therapy in Septicemia.—A. C. Burnham, *Annals of Surgery*, May, 1914, after a study of one hundred and eleven consecutive cases of severe infection, draws the following conclusions regarding vaccine and serum therapy: 1. Vaccines are of benefit in many of the cases not overwhelmed at the onset by

the severity of the infection, and, clinically, seem to benefit the majority of the cases. 2. Antistreptococcic serum is of great value, especially during the earlier stage, when its bactericidal powers are most pronounced, and if given in sufficient doses during the period of invasion will often change a systemic bacteremia into a localized infection. 3. The combination of antistreptococcic serum, used in the early stage of septicemia, together with autogenous vaccines, used as soon as they can be prepared from blood cultures, seems to be particularly beneficial. If the blood cultures are sterile, vaccines may be prepared from the local lesion. Stock vaccines are still less desirable, and are of uncertain value. 4. Neither serums nor vaccines, although they do little harm, are free from danger, and the doses and intervals need to be carefully worked out. 5. Open air treatment in cases in which cultures are sterile, and as an adjunct to vaccine and serum therapy, seems to be the best method of increasing the resistance of the patient.

Is a Positive Wassermann Reaction of Absolute Value?—J. Nicolas and J. Gate, *Annals de Dermatologie et de Syphiligraphie*, April, 1914, found the Wassermann reaction positive in 39 per cent. of the nonsyphilitics examined, and draw the following conclusions: 1. Wassermann's reaction is positive in syphilis with more or less frequency. In no case does a negative reaction allow the denial of the existence of the disease or show a cure; it is influenced very irregularly by antisyphilitic treatment, to which it can in no case serve as a guide. The reactivations of Wassermann's reaction by treatment are likewise irregular and inconstant. The reaction is positive without doubt in persons who present no sign of syphilis, and have no specific history, in whom the reaction is an isolated symptom. By reference to the table which the authors put at the end of their paper, it will be seen that in a number of cases the test was made twice on nonsyphilitics; the reaction was positive at one time and negative at another; sometimes very positive at first and then negative; sometimes very negative at first and later positive.

Salicylic Acid Treatment of Epithelioma.—Weinbrenner, *Muench. med. Wochenschrift*, March, 1914, writes that in this treatment the neoplasm is covered with pure salicylic acid and a piece of zinc oxide plaster. A deep narcosis results, confined altogether to the malignant mass, the normal tissue remaining practically intact. The dressing is renewed every third day or thereabouts, the necrotic mass being removed only when it becomes loose. Forcible removal

may lead to the opening of bloodvessels and favor metastasis. When all the cancerous tissue has been destroyed, further applications cease to cause further necrosis, while the resulting bright red granulations rapidly heal. After ulceration has begun, the application of salicylic acid becomes very painful. This may be controlled by adding one part of anesthesin to two of the salicylic acid. When most of the cancerous mass has been destroyed and removed, further applications of the salicylic acid usually do not cause pain. The duration of the treatment is from two and a half to eight months. Weinbrenner reports nine cases subjected to this treatment, all of whom were cured.

Fatal Illness in Infants with Status Lymphaticus.—C. M'Neil, *Edinburgh Med. Journal*, January, 1914. In a group of thirteen infants, from two to four months old, nearly all found dead in bed, and all apparently well developed and nourished, the lungs in every case examined (eight) showed marked congestion, bronchitis and bronchopneumonia. This was associated in most cases with hyperplasia, general or partial, of the thymolymphatic system. The same pathological grouping was found in all cases examined of a very unusual series of fulminant bronchopneumonia in boys from ten to sixteen years old. There is some evidence that fulminant types of other bacterial infections (scarlet fever and diphtheria) are also accompanied by thymolymphatic hyperplasia, or status lymphaticus. In the two groups of fulminant pneumonia, thyroid hyperplasia was present in every case examined (eighteen).

Influence of Calcium Salts on Transudates and Exudates.—Richard Levy, *Deutsche Medizinische Wochenschrift*, May 7, 1914, reviews the previous work on this subject, and presents a series of carefully conducted experiments by himself. He finds that it is possible materially to reduce the severity and duration of conjunctivitis induced in rabbits by mustard oil by previously treating them with intravenous injections of calcium chloride. On the other hand, the administration of calcium chloride not only fails to reduce the quantity of pleural transudate or exudate caused by several agents, but actually increases both the frequency with which it may be induced and the quantity of fluid. He concludes, therefore, that its clinical use in such conditions is both irrational and harmful.

Uric Acid in the Blood.—Ernst Steinitz, *Deutsche Medizinische Wochenschrift*, May 7, 1914, has slightly modified the method recently devised by Folin and Denis for the quantitative estimation

of uric acid in the blood by simplifying the procedure for the removal of albumin. He has also found it possible to obtain good results from so little as ten c.c. of blood or serum. He conducted estimations on more than fifty patients, and finds that normal blood contains between 0.02 and 0.04 per cent; the blood in true gout between 0.04 and 0.08 per cent; and 0.04 to 0.06 per cent. in atypical gout. A purin free diet does not reduce the endogenous uric acid materially in a short time, but if long continued causes decided reduction. Atophan in large doses causes a marked fall in the uric acid, but this soon returns to its previous level.

Suggestion in Freudian Psychoanalysis.—Engelen, *Deutsche Medizinische Wochenschrift*, May 7, 1914, indulges in severe ridicule of the Freudian theories of the causation of hysteria and allied conditions. He gives a rather lengthy and detailed analysis of the true workings of the method as a means of cure of the state for which it is used, and shows that it effects a cure solely through suggestion. He lays much stress upon the mystery which the Freudians preserve and upon the expense to the patient, and the great length of time devoted to a single analysis, contending that all of these factors go far toward making the method a success with the suggestible victims of neuroses.

Modern Methods of Treating Lupus.—W. Schoenfeld, *Dermatologische Wochenschrift*, May 23, 1914, says that strong solutions of copper work well, but no better and no worse than pyrogallie acid, and are distinctly more painful, while weak solutions are generally inferior to pyrogallie acid. The local effect of both seems to be that of a caustic. The principal benefit of treatment with both gold and salvarsan seems to be that they render the tuberculous tissues more amenable to the action of tuberculin. His results would indicate that these methods are little, if any, better than our older ones, which are granted to be faulty.

Large Hemorrhagic, Apparently Fibromatous Uteri.—F. Lejars, *Semaine Médicale*, May 13, 1914, is convinced, from his clinical experience, that the large, apparently fibromatous uterus, hemorrhagic because of small polypi in its cavity, occurs far more frequently than is generally realized. Diagnosis by palpation is difficult, perfect regularity and uniformity of the uterus being alone suggestive. In uteri showing these peculiarities, especially in young women, additional information by intrauterine exploration should be sought.

This will enable the practitioner to exclude placental remnants as a cause of enlargement of the uterus.

The Value of a Mask Over the Surgeon's Mouth.—A. L. Candler, *British Medical Journal*, May 23, 1914, used cultures of *Bacillus prodigiosus*, which were gargled by the subjects just prior to the experiments, to test the value of masks over the mouth. He finds that in the course of ordinary low talking and quiet breathing no organisms are expelled from the mouth, but that coughing and sneezing drive forth large numbers. Masks with eight layers of gauze over the mouth completely prevent the escape of bacilli after coughing or mild sneezing, but allow some organisms to escape with prolonged, violent sneezing.

Severing the Umbilical Cord Without Tying.—Rachmanov, *Zentralblatt für Gynäkologie*, April, 1914, reports a series of 16,000 births in which the cord was not tied unless there was some indication of a pathological condition. In his method, the newly born child is placed between the mother's legs, and nothing done till all pulsations in the cord cease, about twelve to eighteen minutes. The uterus must in nowise be disturbed. The cord is then cut at a length of about 4 cm., and not tied unless bleeding is present. This is an indication of a pathological condition, and must be treated as such. In all these instances, there has not been a single case lost as a result of bleeding from the cord. In this method, the cord does not dry, and does not come off for five or six days, rather later than usual. The chief advantage appears to be that a firmer scar is formed at the umbilicus.

The Management of Burns.—J. C. Plain, *American Journal of Surgery*, March, 1914, considers the following line of treatment the best for preventing infection and protecting the tissues: The burned area, with the surrounding surface, is sprayed or mopped with hydrogen peroxide, and the entire surface then mopped with gauze. Strips of gauze, which have been previously soaked in a 2 per cent. solution of picric acid in dilute alcohol, are then applied, and over this a thin layer of cotton, held in place with adhesive strips or a roller bandage. This dressing may remain until it is soiled. It should then be removed, the wound cleansed with hydrogen peroxide and fresh gauze, soaked in the picric acid solution, applied. About the third day open all blisters, and mop away the fluid contents, applying a fresh dressing as before.

The Regeneration of the Synovial Membrane and the Joint Capsule.—*Beitr. z. klin. Chir.*, 1913. C. Segale points out that the synovial membrane has no endothelium, and has a peculiar place among connective tissue formations. His experiments in regard to the regeneration of synovial membrane and joint capsule show that an injury of the capsule heals and cicatrizes from the pericapsular connective tissue, while wounds of the synovial membrane heal by regeneration from the edge of the wound. The regenerative process closes on the fifteenth day, because then the synovial shows a marked differentiation into an internal and a fibrillar layer. In the reparative process the tissue of the capsule, in contrast to that of the synovial, is entirely passive. The blood which is poured into the joint cavity in injuries is quickly absorbed.

Röntgen Radiation of the Spleen in Pulmonary Tuberculosis.—Gorky, *Münchener medizinische Wochenschrift*, April 7, 1914 (*Medical Record*, May 23, 1914), himself contributed an article on this subject in the lay press, a résumé of which is as follows: The distinguished author's left apex was in the first stage, the right apex in the second stage. The abundant purulent sputum contained Koch's bacillus in abundance. There was frequent hemoptysis, profuse night sweats, a high degree of emaciation and weakness. In August, 1913, a profuse hemorrhage occurred. For a number of years past the author had lived at Capri, without apparent benefit. In October of the same year, while at his worst, he submitted to Röntgen radiation of the spleen for a period of several months. The improvement was pronounced from the start. The severe symptoms ceased, and there was a gain in weight of twenty pounds. At present the author is in St. Petersburg, feels well, and is under no special regimen.

Fattening in Infancy.—Engel, *Berliner klinische Wochenschrift*, March 2, 1914, suggests, to increase the weight of children, that it is necessary to administer food of high caloric value which does not interfere with the appetite. This is best accomplished by giving cream, beginning with 100 c.c., about a wineglassful, and gradually increasing to one half litre. If given just before bedtime, and the last meal eaten at about 5 or 6 p. m., children do not lose their appetites. It is also important that these patients be kept quietly in bed so that a saving of energy results.

THERAPEUTIC PROGRESS

Caramel Cure in Diabetes.—E. Grafe, *Münchener Medizinische Wochenschrift*, June 30, 1914, uses a caramel preparation of grape sugar and gives from 100 to 300 grams daily. The sugar content of the urine is markedly diminished and the acidosis is greatly improved. It has a great caloric value and adds from 600 to 800 calories daily to the patient's diet. The gastrointestinal disturbance which accompanies its administration, usually a moderate diarrhea, can be overcome by the administration of astringents such as opium and tannalbin. There are no special indications for its use. Every patient with diabetes can take it with benefit, but it appears to act best in the severe cases in which other carbohydrates are either not assimilated or only to a slight degree, and in which acidosis exists. How long and in what dose it should be given must depend on the condition of the digestive organs. Caramel from grape sugar seems to be better than that from cane sugar. The only contraindication to its use is marked gastrointestinal disturbance. In cases of coma it has no effect on the acidosis.

Chaparro Amargosa in the Treatment of Amebic Dysentery. By P. I. Nixon, M.D., San Antonio, Texas (*Jour. of the Amer. Med. Assn.*, May 16, 1914).

Nixon has observed ten cases of amebic dysentery treated with this drug, all of whom recovered promptly. Chaparro amargosa is a small thorny bush, indigenous in Texas and Northern Mexico. The writer has used the infusion, prepared by boiling the whole plant in water for thirty to sixty minutes, which gives the preparation the color of moderately weak tea. Six or eight ounces of this infusion are given half an hour before each meal and at bedtime. Enemas of from 500 to 2000 c.c. of the infusion are given in the knee chest position twice daily. The writer used the detannated fluidextract in one case with excellent results.

Experimental observations made by the author demonstrate a high amebicidal action of the drug in vitro. In the ten cases of dysentery studied, living amebae disappeared from stools almost immediately. The drug seems, therefore, to have a specific amebicidal action similar to that of emetin. None of the cases treated have relapsed.

Sparteine Sulphate: Its Cardiovascular and Renal Action.—Leslie B. Wiggs, *The Old Dominion Journal of Medicine and Surgery*, May, 1914, in summing up the action of sparteine, concludes as follows:

1. Sparteine depresses the cardiac function, causing a diminution in the tone. It stimulates the vagus ganglia in small doses and paralyzes them in larger ones. This is shown by the fact that stimulation of the vagus trunk after large doses does not slow the heart, but sinus stimulation is effective.

2. The slight rise in pressure following intravenous injection is very fleeting and is followed by a marked drop below the normal limit. This latter effect is the sustained sparteine action. The fall in pressure is due largely to

slowing of heart from vagal stimulation and cardiac depressant action. This latter effect is probably due to depression of the sympathetic ganglia.

3. Sparteine is without effect as a diuretic.

Intravenous Injection of Salt Solution in Pulmonary Hemorrhage.—

J. Moczulski, *Wiener Klinische Wochenschrift*, May 7, 1914, treated cases of pulmonary hemorrhage that were not benefited by hydrastis, ice, morphine, gelatin, etc., with intravenous injections of 10 c.c. of ten per cent. salt solution. The duration of the injection was three minutes, and at the site a dry, sterile dressing was applied. Hemorrhage does not stop at once, but hemoptysis is greatly reduced. Subsequent hemorrhages are not prevented; in case of fresh bleeding, repetition of the injection is beneficial. This method is not a panacea; it is a valuable aid to other methods and one which has given better results.

Testiiodyl an Advance in Iodide Therapy.—R. Kafemann, *Berliner Klinische Wochenschrift*, May 25, 1914, believes that the new preparation called testiiodyl has many advantages over previous organic or inorganic iodide preparations in that it contains iodine in chemical combination with blood albumin in such form as to pass the stomach without decomposition and hence without gastric irritation. It liberates its iodine slowly, so that the body is kept continuously under the effects of the drug, yet symptoms of iodism are not often encountered. A further decided advantage is that the preparation also contains a quarter of one per cent. of iron derived from hemoglobin.

Iodin Specific Germicide in Respiratory Affections.—In the treatment of respiratory affections, Blum, *California State Journal of Medicine*, May, 1914, has employed with equally beneficial results hydriolic acid and the iodids of potassium, ammonium, sodium and strontium. The syrup of hydriodic acid, he says, is especially applicable for adults with sensitive digestion and for children. Apart from this consideration the desideratum is to give sufficient iodid to definitely affect the respiratory secretion without causing unpleasant and unfavorable symptoms, coryza, lacrimation and digestive disturbance.

Electrical Treatment of Milk.—Professor J. M. Beattie, Liverpool, England (*Medical Record*, May 23, 1914), reports on some experiments carried out at a Liverpool milk depot with a view of determining whether the electrical treatment of milk destroys pathological bacteria. Sterilization is not in the strict sense of the word brought about, but a great reduction in the total number of bacteria, and after treatment the milk keeps sweet for three or four days, no chemical change taking place in that time and no alteration in taste. In two cases the electrified milk was nontuberculous, though the controls yielded tubercle, so that it seems the milk treated by electricity is a satisfactory food for infants.

Valamin in Gynecological Practice.—Richard Birnbaum, *Berliner Klinische Wochenschrift*, May 25, 1914, praises this drug as an analgesic and sedative or hypnotic in painful gynecological conditions and for hypersensitive

and neurotic conditions associated therewith. He also finds it of value as a sedative before and after operations, and believes that its preliminary use reduces the amount of anesthetic necessary. The drug combines the properties of valerian with those of amylene hydrate, being the isovalerianic ester of the latter.

X Rays and Radium in the Treatment of Cancer.—Francis Hernaman-Johnson, *British Medical Journal*, May 9, 1914, compares the value of these two agents. X ray is to be preferred in early cases, whether before or after an operation. In tumors which are not amenable to operation, a tube of radium should be placed in the center of the growth, and the X rays should be used on the surrounding area. There is little evidence to show that radium is productive of better or more lasting results than the X ray in the general run of cases.

Therapeutic Value of the Potato.—Heaton C. Howard, *Lancet*, April 11, 1914, as a result of long observation, reports that concentrated preparations of the expressed juice of potato exert a marked anodyne effect on certain painful conditions, when applied externally to the part in the form of a wet dressing, a plaster, or an ointment. He reports cases to substantiate his contention. He states that he is unable to account for this power of a juice which contains no active alkaloid, and which seems to be composed mainly of potassium salts.

Use of Dried Milk.—A. E. Naish, *Pediatrics*, May, 1914, says that we have in dried milk a food which contains the same substances as cow's milk, and in the same proportions, except when humanized, a milk which is digestible to a wider range of infants, which has obvious advantages of storage and distribution, and which appears to have no tendency to promote any of the later nutritional disorders.

Site of Action of Strychnine.—Strychnine, according to McGuigan and Becht, *Journal of Pharmacology and Experimental Therapeutics*, May, 1914, acts on both motor and sensory neurons, and no tetanus can develop from its action unless the motor neuron is directly acted on by it.

Treatment of Cirrhosis of the Liver with Keratin.—S. M. Zypkin, *Berliner Klinische Wochenschrift*, February 23, 1914, asserts that keratin is of more decided value in the treatment of cirrhosis of the liver than the iodides. Owing to the chronicity of the complaint, it is more advisable to use keratin, which after a long period of administration, is followed by very few if any untoward effects.

Uterine Hemorrhage Associated with Pellagra.—Peete (*Old Dominion Journal of Medicine and Surgery*, August, 1912) calls attention to a symptom which he has noted in eight cases of pellagra, which consists of marked uterine hemorrhage appearing before the ordinary pathognomonic symptoms. The observation is presented by the writer with the intention of interpreting this sign as diagnostic of the possibility of pellagra.

MISCELLANY

DESCRIPTION OF A FAMOUS SURGICAL OPERATION AND WHAT FOLLOWED

The operating theatre is crowded; much talk and fun, and all the cordiality and stir of youth. The surgeon with his staff of assistants is there. In comes Ailie: one look at her quiets and abates the eager students. That beautiful old woman is too much for them; they sit down, and are dumb, and gaze at her. These rough boys feel the power of her presence. She walks in quickly, but without haste; dressed in her mutch, her neckerchief, her white dimity short gown, her black bombazine petticoat, showing her white worsted stockings and her carpet shoes. Behind her was James, with Rab. James sat down in the distance and took that huge and noble head between his knees. Rab looked perplexed and dangerous; forever cocking his ear and dropping it as fast.

Ailie stepped upon a seat, and laid herself on the table, as her friend, the surgeon, told her; arranged herself, gave a rapid look at James, shut her eyes, rested herself on me, and took my hand. The operation was at once begun; it was necessarily slow; and chloroform—one of God's best gifts to his suffering children—was then unknown. The surgeon did his work. The pale face showed its pain, but was still and silent. Rab's soul was working within him; he saw that something strange was going on—blood flowing from his mistress, and she suffering—his ragged ear was up, and importunate; he growled, and gave now and then a sharp impatient yelp; he would have liked to have done something to that man. But James had him firm, and gave him a "glower" from time to time, and an intimation of a possible kick—all the better for James, it kept his eyes and his mind off Ailie.

It is over; she is dressed, steps gently and decently down from the table, looks for James, then turning to the surgeon and students, she courtesies, and in a low, clear voice begs their pardon if she has behaved ill. The students—all of us—wept like children; the surgeon wrapped her up carefully, and, resting on James and me, Ailie went to her room, Rab following. We put her in bed. James took off his heavy shoes, crammed with tackets, heel capped and toe capped, and put them carefully under the table, saying: "Maister John, I'm for nane o' yer stryngie nurse bodies for Ailie. I'll be her nurse, and I'll gang about on my stockin' soles as canny as pussy." And so he did; and handy and clever and swift and tender as any woman was that horny handed, small, peremptory little man. Everything she got he gave her; he seldom slept; and often I saw his small, shrewd eyes out of the darkness fixed on her. As before, they spoke little.

Rab behaved well, never moving, showing us how meek and gentle he could be, and occasionally, in his sleep, letting us know that

he was demolishing some adversary. He took a walk with me every day, generally to the Candlemaker Row; but he was somber and mild; declined doing battle, although some fit cases offered, and indeed submitted to sundry indignities; and was always very ready to turn, and came back faster, and trotted up the stair with much lightness, and went straight to that door.

Jess, the mare, had been sent, with her weather worn cart, to Howgate, and had doubtless her own dim and placid meditations and confusions, on the absence of her master and Rab, and her unnatural freedom from the road and her cart.

For some days Ailie did well. The wound healed "by the first intention"; for, as James said: "Oor Ailie's skin's ower clean to beil." The students came in quiet and anxious, and surrounded her bed. She said she liked to see their young, honest faces. The surgeon dressed her, and spoke to her in his own short, kind way, pitying her through his eyes, Rab and James outside the circle—Rab being now reconciled, having made up his mind that as yet nobody required worrying, but, as you may suppose, *semper paratus*.

So far well; but, four days after the operation, my patient had a sudden and long shivering, a "groosin'," as she called it. I saw her soon after; her eyes were too bright, her cheeks colored; she was restless, and ashamed of being so; the balance was lost; mischief had begun. On looking at the wound, a blush of red told the secret; her pulse was rapid, her breathing anxious and quick, she wasn't herself, as she said, and was vexed at her restlessness. We tried what we could. James did everything, was everywhere; never in the way, never out of it; Rab subsided under the table into a dark place, and was motionless, all but his eye, which followed every one. Ailie got worse; began to wander in her mind, gently; was more demonstrative in her ways to James, rapid in her questions, and sharp at times. He was vexed, and said: "She was never that way afore; no, never." For a time she knew her head was wrong, and was always asking our pardon—the dear, gentle, old woman; then delirium set in strong, without pause. Her brain gave way, and then came a terrible spectacle:

"The intellectual power, through words and things,
Went sounding on its dim and perilous way";

she sang bits of old songs and Psalms, stopping suddenly, mingling the Psalms of David and the diviner words of his Son and Lord with homely odds and ends and scraps of ballads.

Nothing more touching, or in a sense more strangely beautiful, did I ever witness. Her tremulous, rapid, affectionate, eager Scotch voice—the swift, aimless, bewildered mind, the baffled utterance, the bright and perilous eye; some wild words, some household cares, something for James, the names of the dead, Rab called rapidly and in a "frenyt" voice, and he starting up surprised, and slinking off as if he were to blame somehow, or had been dreaming he heard; many eager questions and beseechings, which James and I could make nothing of and on which she seemed to set her all,

and then sink back misunderstood. It was very sad, but better than many things that are not called sad. James hovered about, put out and miserable, but active and exact as ever; read to her, when there was a lull, short bits from the Psalms, prose and meter, chanting the latter in his own rude and serious way, showing great knowledge of the fit words, bearing up like a man, and doating over her as his "ain Ailie," "Ailie, my woman!" "Ma ain bonnie wee dawtie!"

The end was drawing on; the golden bowl was breaking; the silver cord was fast being loosed—that animula blandula, vagula hospes, comesque, was about to flee. The body and the soul—companions for sixty years—were being sundered, and taking leave. She was walking alone through the valley of that shadow into which one day we must all enter—and yet she was not alone, for we know whose rod and staff were comforting her.

One night she had fallen quiet, and, as we hoped, asleep; her eyes were shut. We put down the gas, and sat watching her. Suddenly she sat up in bed, and taking a bedgown, which was laying on it rolled up, she held it eagerly to her breast—to the right side. We could see her eyes bright with a surprising tenderness and joy, bending over this bundle of clothes. She held it as a woman holds her suckling child; opening out her nightgown impatiently, and holding it close, and brooding over it, and murmuring foolish little words, as over one whom his mother comforteth, and who sucks and is satisfied. It was pitiful and strange to see her wasted, dying look, keen and yet vague, her immense love.

"Preserve me!" groaned James, giving way. And then she rocked back and forward, as if to make it sleep, hushing it, and wasting on it her infinite fondness. "Wae's me, doctor; I declare she's thinkin' it's that bairn." "What bairn?" "The only bairn we ever had; our wee Mysie, and she's in the Kingdom, forty years and mair." It was plainly true; the pain in the breast, telling its urgent story to a bewildered, ruined brain, was misread and mistaken; it suggested to her the uneasiness of a breast full of milk, and then the child; and so again once more they were together, and she had her ain wee Mysie in her bosom.

This was the close. She sank rapidly; the delirium left her; but, as she whispered, she was "clean silly"; it was the lightening before the final darkness. After having for some time lain still, her eyes shut, she said, "James!" He came close to her, and lifting up her calm, clear, beautiful yes, she gave him a long look, turned to me kindly but shortly, looked for Rab, but could not see him, then turned to her husband again, as if she would never leave off looking, shut her eyes, and composed herself. She lay for some time breathing quick, and passed away so gently that, when he thought she was gone, James, in his old fashioned way, held the mirror to her face. After a long pause, one small spot of dinness was breathed out; it vanished away, and never returned, leaving the blank, clear darkness of the mirror without a stain.

"What is our life? It is even a vapor which appeareth for a little time, and then vanisheth away."

Rab all this time had been full awake and motionless; he came forward beside us: Ailie's hand, which James had held, was hang-

ing down; it was soaked with tears; Rab licked it all over carefully, looked at her, and returned to his place under the table.

James and I sat, I don't know how long, but for some time, saying nothing. He started up abruptly, and with some noise went to the table, and putting his right fore and middle fingers each into a shoe, pulled them out and put them on, breaking one of the leather latches, and muttering in anger, "I never did the like o' that afore!"

I believe he never did; nor after, either. "Rab!" he said roughly, and pointing with his thumb to the bottom of the bed. Rab leaped up, and settled himself; his head and eye to the dead face. "Maister John, ye'll wait for me," said the carrier; and disappeared in the darkness, thundering downstairs in his heavy shoes. I ran to a front window; there he was, already round the house, and out at the gate like a shadow.

I was afraid about him, and yet not afraid; so I sat down beside Rab, and, being wearied, fell asleep. I awoke from a sudden noise outside. It was November, and there had been a heavy fall of snow. Rab was in statu quo; he heard the noise, too, and plainly knew it, but never moved. I looked out; and there, at the gate, in the dim morning—for the sun was not up—was Jess and the cart, a cloud of steam rising from the old mare. I did not see James; he was already at the door, and came up the stairs and met me. It was less than three hours since he left, and he must have posted out—who knows how—to Howgate, full nine miles off, yoked Jess, and driven her astonished into town. He had an armful of blankets, and was streaming with perspiration. He nodded to me, spread out on the floor two pairs of clean old blankets, having at their corners, "A. G., 1794," in large letters in red worsted. These were the initials of Alison Graeme, and James may have looked in at her from without—himself unseen but not unthought of—when he was "wat, wat, and weary," and after having walked many a mile over the hills, may have seen her sitting, while "a' the lave were sleepin'"; and by the firelight working her name in the blankets, for her ain James' bed.

He motioned Rab down, and taking his wife in his arms, laid her in the blankets, and wrapped her carefully and firmly up, leaving the face uncovered; and then lifting her, he nodded again sharply to me, and with a resolved but utterly miserable face strode along the passage, and downstairs, followed by Rab. I followed with a light; but he didn't need it. I went out, holding stupidly the candle in my hand in the calm, frosty air; we were soon at the gate. I could have helped him, but I saw that he was not to be meddled with; and he was strong, and did not need it. He laid her down as tenderly, as safely, as he had lifted her out ten days before—as tenderly as when he had her first in his arms and when she was only "A. G."—sorted her, leaving that beautiful sealed face open to heaven; and then taking Jess by the head, he moved away. He did not notice me, neither did Rab, who presided behind the cart. I stood till they passed through the long shadow of the College, and turning up Nicolson Street, I heard the solitary cart sound through the streets, and die away and come again; and I returned, thinking of that company going up Libberton Brae.

then along Roslin Muir, the morning light touching the Pentlands and making them like onlooking ghosts; then down the hill through Auchindinny woods, past "haunted Woodhouselee"; and as day-break came sweeping up the bleak Lammermuirs, and fall on his own door, the company would stop, and James would take the key, and lift Ailie up again, laying her on her own bed, and, having put Jess up, would return with Rab and shut the door.

James buried his wife, with his neighbors mourning, Rab inspecting the solemnity from a distance. It was snowing and the black, ragged hole would look strange in the midst of the swelling, spotless cushion of white. James looked after everything; then rather suddenly fell ill, and took to bed; was insensible when the doctor came, and soon died. A sort of low fever was prevailing in the village, and his want of sleep, his exhaustion, and his misery made him apt to take it. The grave was not difficult to reopen. A fresh fall of snow had again made all things white and smooth; Rab once more looked on, and slunk home to the stable.

The above classic was written by Dr. John Brown, of Edinburgh, Scotland. He studied medicine, as was then the custom, in the office of a practitioner, in this instance a surgeon, Mr. Syme, cousin of Sir Joseph Lister. It was Mr. Syme who performed the operation dilated upon above, an abstract from a short story by Dr. Brown, "Rab and His Friends." Dr. Brown wrote much, but we believe "Rab and His Friends" his best known today. He died of pleurisy, May 11, 1882.

There could be no comment to this short story that would seem to increase our interest in it. Some of our readers have doubtless read it, others there are who will become acquainted with it now for the first time, and will declare it a story of exceptional interest, beautifully told and strongly appealing to all medical men. Some of us will recall the amphitheater when as students we witnessed scenes similar to the above; how the fun and roystering ceased immediately the patient entered the room, and how often our sympathies were roused even to the shedding of tears. With what a sigh of relief when it was over. Ah, but those were bright days, when youth, health and ambition was ours! Irrepressible good nature, buoyancy of spirits we had, often to the annoyance of the Professor. At times we were called onto the carpet, but what mattered that? The boys were loyally waiting outside or around the building somewhere ready to welcome us and to disclose their willingness to share in our punishment, which was usually a lecture on good behavior in and out of the classroom.

As for Rab, what one of us does not remember his loyal companion of boyhood days? Most of us, I think, had his dog, and will remember the pranks they played together after school and on holidays. But the boy who really got the most out of life was he that lived close to nature; among the trees, the birds, the wild flowers; he who owned a gun as well as a dog, and was never far from the swimming hole, apple orchard or watermelon patch. Rab was an exceptional dog, and we cannot but feel for him. His load was heavy at the last, but, like some of us, he could dream of glori-

ous days. We would have liked to have had the story end more pleasantly, but the end is not to our fashioning, is usually a tragedy, and in this we must acquiesce. Poor Ailie, poor James, poor Rab, who would own allegiance to none other than his tried and true friends!

(EDITOR.)

SYNTHESIS

The trend of scientific research is largely tending toward alchemy. It is true that we are not directly out for the elusive trinity, the philosopher's stone, elixir vite and the alkahest; but we are again synthetic. To early minds it seemed more wonderful to create than to destroy. Scientifically, Bacon was the first of the iconoclasts, and after him there was a deluge of disrupted matter. Analysis was endemic, and men saw nothing but the marvels of simplicity. To-day we have experimentally smashed almost all our surroundings, and are trying to put them together in new ways. There are drugs galore, whose artificial nomenclature is no less ingenious than their composition, while their alleged qualities are more wonderful than all. We have synthetic sugar and synthetic rubber; we have heard of synthetic milk, made chiefly from a Chinese bean (soy), which is an ever present dread. There was one who tried to manufacture eggs. The yolk, the white and the shell he could do "in his head." He stuck at the skin. He finally perfected it, but the cost of the necessary rubber ruined his enterprise commercially. Synthetic life is no new idea. Men have striven to imitate the masterpiece of the Ancient of Days with soap and oily films. Their ameba moved and were still. A story was lately told to the Société Internationale de la Tuberculose. Dr. Alexandre Marey has made, "aseptically by the action of the tuberculin of the Pasteur Institute upon sterilised glycerophosphate of soda," bodies identically alike in form and capacity for stain with Koch's bacillus. What is more marvellous, they grow on potato and the guinea pig just as do their prototypes. If this thing is true, we must turn over our ideas. They are probably not true; but nowadays it is more popular to believe than to doubt. "Go round." That is the real way to knowledge. Swift used to call the man who made two blades of grass grow where one did before a benefactor of the human race. We wonder if the same remark is applicable to the multipliers of tubercle bacilli.—*The Medical Press*, July 8, 1914.

LECITHIN

It has been shown that phosphorus in the form of organic compounds, as it occurs in milk, or eggs, probably changes in the body to phosphate and is subsequently elaborated lecithin. In view of this, *Jour. A. M. A.*, February 21, 1914, there would seem to be no physiologic or biologic reason for preferring isolated lecithin as a medicament to milk or eggs. If it is thought that lecithin is indicated, the administration of one or two raw or cooked yolks of eggs will supply all the lecithin that can be metabolized.

BOOK REVIEWS

The Question of Alcohol. By EDWARD HUNTINGTON WILLIAMS, M. D.
The Goodhue Company, New York, 1914.

This small volume contains much matter for serious thought. The question of alcohol is presented from the viewpoint of one who has made a careful personal study; investigations partly in association with the author's brother, Dr. Henry Smith Williams. The first chapter is devoted to The Drug Habit Menace, Cocaine; Extensive travels in the South, where the habitués were closely studied. The habit was found to prevail to an alarming extent among the negroes, and to be largely due to ill-advised liquor legislation—prohibition. Our author declares that where open drinking places have been abolished, cocaine taking is increasing at an alarming rate. The significant fact is stated that many persons who formerly found their way into hospitals and jails as alcoholics, now return as drug habitués; that the enforcement of prohibition has created a demand for and produced a traffic in habit forming drugs among a dangerously large proportion of the lower classes, particularly in the South. This fact has been pretty generally known, and the advisability of the prohibition propaganda freely commented upon.

The subject cannot be profitably discussed in the limits of a book review. We advise all interested in learning the facts to read this small book.

Collected Papers from the Research Laboratory of Parke, Davis & Co., Detroit, Mich. Volume 2.

This is, as the title declares, a volume of collected papers or reprints, few of which will be found of interest to physicians, but all to laboratory workers.

Atmospheric Air in Relation to Tuberculosis, with 93 plates. By GUY HINSDALE, A.M., M.D., Hot Springs, Va. Smithsonian Institution, Washington, D. C., 1914.

This work of some 140 pages, with numerous beautiful illustrations, is one of nearly a hundred essays entered in competition for a prize of \$1,500, offered by the Smithsonian Institution for the best treatise on the Relation of Atmospheric Air to Tuberculosis, to be presented in connection with the International Congress on Tuberculosis, held in Washington September 21 to October 12, 1908.

At the request of the Institution, Dr. Hinsdale revised his essay so as to indicate some of the advances made in the study of the subject during the past five years.

It is a thoroughly masterful presentation of the subject; not the least of its features being the very numerous and illuminating illustrations, 93 of which are most beautiful plates. The book gives detailed description of all forms or phases of tuberculosis, and will prove of very great value to physicians, particularly in the selection of a suitable climate for tubercular patients. Heliotherapy is fully treated, as well as the value of high and low altitudes and moist and dry climates. Open air schools is also discussed and up to date. The work should become popular not only with physicians, but the general public.

Diseases of the Bones and Joints. By LEONARD W. ELY, M.D. New York: Surgery Publishing Company, 1914.

This work of some two hundred pages, is intended primarily for the general practitioner. It deals with such conditions as he may encounter, and the material is presented in a brief manner readily comprehensible to the gen-

eral practitioner. It takes up the anatomy, physiology and pathology of bones and joint, acute and chronic arthritis of various types, ankylosis, osteomyelitis, inflammations, new growth, etc. The illustrations are profuse. As Dr. Ely is an authority upon the subjects here treated, the book will be accepted as coming from one who knows whereof he writes.

Guiding Principles in Surgical Practice. By FREDERICK-EMIL NEEF, B.S., M.L., M.D. New York: Surgery Publishing Company, 1914.

This work deals with general considerations of surgical practice: preparation of the patient, wound dressings, sterilization of instruments and the operators' hands, suture material, anesthesia, care of the patient after operation, and other features determining the guiding principles in surgical practice. It will be found a useful work for the general practitioner who is compelled to do minor surgery as well as the specialist. Its text is modern and will be found wise and helpful.

United States Naval Medical Bulletin. Published for the Information of the Medical Department of the Service, Under the Supervision of the Bureau of Medicine and Surgery, Navy Department. Government Printing Office, Washington, 1914.

This volume contains a wealth of information for not only the Naval Surgeon but the general medical man as well. There are numerous original articles, medical and surgical, which could be read with great profit by the specialist as well as general practitioner.

PAMPHLETS AND REPRINTS RECEIVED

I. COLLECTED STUDIES ON THE INSECT TRANSMISSION OF TRYPA NOSOMA EVANSI. II. SUMMARY OF EXPERIMENTS IN THE TRANSMISSION OF ANTHRAX BY BITING FLIES. By BRIME MITZMAIN. Government Printing Office, Washington, 1914.

GASEOUS IMPURITIES IN THE AIR OF RAILWAY TUNNELS. By ATHERTON SEIDELL and PHILIP W. MESERVE. Government Printing Office, Washington, 1914.

TRACHOMA. A SURVEY OF ITS PREVALENCE IN THE MOUNTAINOUS SECTIONS OF VIRGINIA AND WEST VIRGINIA. By TALLAFERRO CLARK, Surgeon. United States Public Health Service. Government Printing Office, Washington, 1914.

BUBONIC PLAGUE, ITS ERADICATION AND PREVENTION IN URBAN COMMUNITIES. By R. H. CREEL, Passed Assistant Surgeon, United States Public Health Service. Government Printing Office, Washington, 1914.

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ORIGINAL ARTICLES

THE VAGINA AND ITS FLOW*

By DOUGLAS H. STEWART, M.D.

New York

A mixed bacterial invasion of the vagina is a process akin to the defense of the stomach wall against digestion by its own juice. The staphylo-strepto (or ordinary) pus forming germs melt tissues by a process similar to peptonization, and the antibody defenders of said tissues are proteolytic enzymes. The vaginal secretion possesses five times the bactericidal power of an equal strength lactic acid solution, and an attack by innumerable invaders, is a success or failure according to the impotence or the power of the defense.

A powerful digestion is found in the well known fish the Sea Robin. Cutting some open, I found live crabs in their stomachs. In one selected fish was a lively unhurt crab, another with half of its body melted away or digested, and there was also what might be termed an irregular quarter of a crab; but all were alive, and I cannot say just how long life persists. The fisher folk say the crabs die, living. This may be one of Nature's ways of preventing putrefaction, but the point that interested me was, why did not gastric juice that could liquefy a living crab also corrode the softer fish that contained it? I took some Sea Robins, cut off their heads, purse stringed their necks, excluded water from their stomachs, left them in **salt water** for twentyfour hours, cut them open, and each autopsy revealed to me marks of stomach corrosion, but no great changes otherwise. Stopping the circulation appeared to be sufficient to allow gastric tissues to digest themselves. I inferred that the blood produced an anti or defensive ferment, and stopping the circulation arrested the local manufacture of this substance. The gastric juice did attack both crab and containing stomach, but the latter was undamaged because it could put up an adequate defense, while the

*A résumé of a paper read before the West End Medical Soc. of New York.

alkaline crab with its antacid shell had no chance at all, but was annihilated.

Comparing a solution of one grain of lactic acid to an ounce of water, with vaginal secretion of the Sp. Gr. 1012, I found both responded alike to the potassa test for acidity, but the vaginal product would stop the growth of strepto-staphylo pus, which the lactic acid would not do under five grains to the ounce. Evidently the common idea, that lactic acid is the sole or principal germicide of the vagina, needs revision; comparing the vaginal and gastric secretions, it was evident that in both a certain amount of acidity was necessary for the various enzymes to become active. The gastric can prevent putrefaction, the vaginal cannot, but the latter has an external drainage; therefore, the different conditions required by retention or expulsion sum up this matter. In the vaginal walls are no mucous glands; lubrication is furnished by uterus and vulva, and the upper or epithelial layer is a shield against infection. Nitrate of silver may peel off this shield, and surface workers (gonococci) may be rolled up within the cast off layer; but if some germs escape, or if the tissue melters and peptonizers (staphylo-strepto) are present, then the caustic has removed an obstruction to germ invasion and has opened the subepithelial spaces. A burn is a trauma, and some very obstinate, but conscientiously treated, cases of leucorrhea will recover when the cauterization is stopped and damaged tissues allowed to heal. Search with a magnifying dental mirror will reveal scars, erosions, etc., on the back of folds and rugae, while macerations, of kaolin or persistent douching, should not be ignored. If one spreads the vulvar lips, wipes between them with some absorbent cotton, examines the cotton, and is governed by his findings, then he could not explain how any vagina could remain sterile. Germs, foreign bodies, coal, dirt, paper, lint, etc., are not at all rare, only usually masked by the introduction of speculum or finger; in short, an intact epithelial layer bathed in a germicidal fluid is all that prevents infection from becoming the rule. One may even select a case and demonstrate thereby an alkaline flow coat of uterine origin, infected with vulvar germs, and upon wiping this away he may find places, upon the vaginal wall itself, that are sterile and of acid reaction.

Suppose a given hypothetical case of leucorrhea, after all surgical repairs and proper germicidal measures have been carried out, and yet the flow continues in spite of the attention that has been given to the correction of birth lacerations, malpositions, drainage and disturbances of circulation; then there are usually damages to the horny epithelial layer. In the young woman such injuries are

traumatic; in the senile either atrophic or malignant (proliferative), or both combined. In young and old there are nutritional changes in the same structure. Congestion may be found in either, but the processes of repair are at such different levels that therapy must vary accordingly, if it is to be efficient.

In the troubles of young women it was not possible to increase antibodies, and I tried lactic acid douches, but after wiping away the acid, which had been introduced, and testing the vaginal secretion, the acidity had fallen from 1 to 300 to 1 to 1000; this confirmed the teaching that applications of acids diminish acid secretions. Experimentation showed that acetic and citric pulled down the acidity less than the mineral acids did; and a douche of acetic acid (5 i to qt. i) combines efficiency, economy and the psychical effect described as "feeling so clean." The patients had ample personal experience with the ordinary astringents and disinfectants. Acetic acid is hemostatic, and therefore may be, or may not be, employed at a menstrual period. That depends upon the result desired.

In dehydrating tissues, hygroscopic powers are in proportion to Sp. Gr., which with glycerine begins at 1.250 and decreases to 1.050, when diluted by wound secretion, whereas sugar begins at 1.600, but refuses to go lower than 1.345, so long as any remains undissolved. Its honey colored stain, when visible on the outside of a white dressing, causes the inexperienced man to make unseemly haste in the unnecessary opening of the bandages and the mortifying display of a clean wound.

The splendid results obtained with sugar as a wound healer are recorded at length, but if forgotten by American surgeons, among whom they originated, they are not forgotten abroad. To give the end results of several years spent in trying, adopting or discarding this formula finally resulted, after various chemists had lost their tempers and declared that it would not remain a light powder, but would always "get wet." However, these proportions will secure satisfactory results: R Sublamine gr. ii, Sod. Cit. 5 ii, Alum 5 iii, Sod. Chlorid. ʒ ss, Plumb. Acet. 5 vi, Sugar to ʒxvi (all apothecaries weight). Introduced into the vagina, the sugar pushes up the Sp. Gr. and the stimulated flow converts the powder into Sublamine + Wright's sol. + Aluminum Acetate + White lead. If applied to a septic wound or burn and rapid healing does not start promptly, it may be safely assumed that the patient is in need of surgical drainage or iodide of potash, or both.

It is applied through a speculum with a spoon, and the vagina should be well cleaned out with dry absorbent cotton before each

application. The white lead is insoluble and precipitates in the vagina. This is easily wiped away, but has often been mistaken for caseous discharge, as yellow vaseline, used as a speculum lubricant and bubbling up under the cervix, has been miscalled, pus. It is a good thing to wipe out any vagina under examination, otherwise the true color and condition of structures may not be determined. Iodin, phenol (carbolic acid) and nitrate of silver are good, honest medicines, but the amount of good or harm that they may do depends altogether on the personal equation of their employer. They are irritant antiseptics and superficial caustics. Suppose, for brevity's sake, we consider solely carbolic acid. If irritation and its consequences were removed from the sphere of action so that neither gangrene nor cauterization could follow its use, if it were deprived of the ability to coagulate proteids so that 10 or 20 per cent. could be applied to an open wound, why then it would become a powerful disinfectant, which might be applied for a long period of time without its germicidal effect being interfered with by the formation and separation of any pellicle. It is not necessary for me to go into details about how this is accomplished by Chlumsky's sol. or any of the camphor-phenol combinations. I began substituting Shuford's sol. in vaginal and cervical work wherever carbolic acid, iodine or silver nitrate were indicated, as it had all the advantages of a caustic without cauterization. The solution is: Borax 5 i, Salicylic acid 5 i, Phenol, 5 iii, Glycerin 5 i. Inject it into a pile or an hypertrophy, and they disappear, thrown off, and leaving behind a smooth healthy mucous surface. In other words, it is a noncauterant, tissue destroying agent, when injected; but not when applied. It is a combination treatment of Lister and Thiersch, in a way. It may be applied and the sugar powder tamped right down upon it. Its effect in gonorrheal infections is fully equal to its good result on septic wounds, and I need not say more in its praise than that. When applied to erosions, etc., it will attack pathological tissue only. Some enthusiasts apply it to the cervix and also to the knee, or externally in gonorrheal rheumatism. Its analgesic properties are as its formula would indicate.

In senile vaginal fluxes the tissues should generally be nourished and the membranes fed by the local application of codliver oil. The best method, that I know, is to fill a veterinary or dog's capsule, of a half ounce capacity, with codliver oil in which thymol iodide 5 or 10 per cent. is dissolved. Probably no one desires to make an application to a malignant growth, but if any one should I very much doubt if this has an equal. I have been experimenting in the feeding of sluggish wounds, ulcers, etc., and this was one

of the solutions used. It was suggested by the Merck people at a time when I was trying to produce a sterile codliver oil to be used on a tubercular peritoneum. To go further into this matter would carry us far away from the subject. However, it is truly remarkable what feeding an atrophied mucous membrane will accomplish; in short, within reasonable limits success is sure, and in the vagina the annoying flow is stopped. The process, being one of nutrition, is necessarily slow. The technic is simply to have the patient introduce one of the capsules every night, to maintain the recumbent position for the balance of the night, to wear a napkin or protector, and to wash out the vagina in the morning with a douche of water containing a heaping teaspoonful of washing soda and another of salt to the quart. I have tried other oils, and found lard the second best. It can be melted and perfumed, the thymol iodide (or plain iodine, one grain to the ounce) added, and the whole poured into a jar with the idea of letting the patient fill the empty capsules as she requires them. Cocoa butter is a poor third, with olive and other vegetable oils of small value. The only distinction I can draw between the codliver oil and the lard is that the oil seems to act quicker and has an odor, the lard is slower, appears to act quite as well if given time, and it can be given almost any odor that should be desired. It is imperative when using fats in the vagina in this way, that there should be a daily washing soda douche for reasons that will usually become apparent, as vulva eczema results from fatty acids and their irritation, and because the salt and soda solution seems to make absorption very active, possibly through mechanical cleansing and possibly by the stimulation of circulation in an acid secreting membrane, which carbonate of soda always produces after its application.

Finally, if any solution or powder that I have mentioned is employed, that employment is not followed by any such process as tanning. The tissues are either unaffected or softened. Therefore, when any of them, but particularly the powder, is put upon a sloughing surface, the sloughs are cast off promptly and the dark surface becomes a clean, bright red one. Some physicians have thought this indicated a change for the worse, as the wound or hole or whatever it was looked larger. Persistence in the use of the application brought success, and experience demonstrated that the enlarged appearance meant simply that the lesion was clean and its extent more readily appreciated.

ARE INEBRIATES CURABLE?

BY T. D. CROTHERS, M.D.

Hartford, Conn.

In a recent paper by a somewhat eminent medical man occurs the following statement: "In my long experience, I have never known a drunkard cured. It is a fiction to suppose that drugs or hospital restraint can restore the moral and physical degeneracy of such persons. I turn them over to the priests and clergymen. Beyond their efforts, there is nothing that can be done."

This statement, half a century ago, represented the average medical judgment at that time. Today it is a reflection of the profound ignorance of the author; it is an echo of one who is belated in the march and has no idea of the progress of science.

I note this, not as being worthy of special notice, because it is too far back to be considered in this day, but it will serve as a text for some clinical facts which are by no means remarkable. The claims of cures by the gold and specific advocates resemble those of squatter settlers of a new country, who lay out towns and streets, and fill the air with the most extravagant assertions of the promises of a great city, of great wealth and great prosperity. It is called a "boom town." By and by they move on, and the persons who invested find that they have lost all. The promises and expectations were as thin air that blew off, leaving little or no trace behind them. Years afterward the real settlers come on and build up farms and towns and villages on a most substantial basis, that grow on as the years go by. The men who claim from 70 to 90 per cent. cures from their special methods are the squatter settlers, the empirics which follow every new advance in science. They simply point out what might be accomplished along more exact scientific lines. The thousands of poor distracted men and women who have taken the various cures under the most extravagant credulity and expectation relapse, and in most cases find themselves worse than before. Often the drugs used increase the debility and degeneration which they sought to cure, and most of them despair of any help along physical lines; and while occasionally some one remains abstinent, there is a consciousness that real therapeutic measures have not yet been discovered.

A few scientific men have recognized the physiological, psychological and pathological conditions that underlie the drink craze, and realize that a cure depends on an exact knowledge of these. As an illustration, in the surgical field, the removal of a dead bone, the elevation of depressed bones, the excising of a tumor, a growth, re-

lieving the pressure on a nerve, the removal of teeth, the cutting of retracted muscles, the correction of nutrient disturbances, have all been followed by a cessation of the drink craze, and absolute cure. Any other treatment would have been useless.

A large number of drinking men suffer from poisons within and without the body, and their desire for drink depends on the presence of these poisons. A still larger number of persons suffer from exhaustion of both brain and muscle activities, and remedies directed to remove these averts the drink craze.

A certain proportion of persons drink from mental defects of reasoning, theories and thought forces; restore these, and they recover; and so on through a long list of causes, almost as infinite as the clouds; there follows perversions, fatigue, irritation, physical and mental suffering, diminished vitality, for which spirits is a most grateful narcotic.

The inebriate is a most complex neurotic, and is the most curable, not by removing spirits alone, but by removing chains of causes and deterrent forces, of which the drink craze is often only a symptom. The record of three persons furnishes startling examples of the possibility of cure and the certainty that this work will comprise a distinct branch of future practice, not far away.

The first example was that of the son of a very wealthy merchant, who was brought up in idleness and general neglect. His father was too busy with business, and his mother had too many social duties, so his early training was left to hired retainers.

He bought his way through college and was trained only in vices and dissipation and luxuries. By and by his father and mother died, and he was left the possessor of a large fortune. After several years of riotous living his fortune was taken out of his hands and he was placed on an annuity. Then began the rounds of institutions for recovery from this and that condition, principally from drink excesses.

Finally he came under my care, and was found to be without the slightest knowledge of the most elementary purposes and objects of life. A process of new growth began. This with physical restoration, through a great variety of means and measures, literally reclaimed him. After several months' treatment he went out and began life as a merchant, working with energy and new courage. Years afterward he married and lived a most exemplary life. He was prominent as a philanthropist, was active in every good work and sought to make the world better.

Twenty years later he died and left a family and fortune, and a good name that is cherished by many. Here was a case of positive

cure, not by drugs, but by a combination of means based on exact knowledge of the causes.

Why should not this man have had treatment earlier, with equally successful results? Quacks could not have done it, experts in mental diseases and experts in therapeutics and diagnosis would all have failed, simply because theories took the place of actual study.

The second example was that of an Irish lawyer, who by energy and genius rose to great eminence in his profession. Then suddenly he became an inebriate and his progress downward was rapid and full of intense climaxes. Finally he was sent to Ward's Island as a vagrant, without a home and without friends. In his progress down he had taken various quack remedies, had been under the care of different physicians, but his mania for spirits carried everything before it. He became a drug taker, because it was easier to procure drugs than spirits and lasted longer. At times he made an effort to recover. Then he gave up in despair. He was both a physical and mental wreck. A distant relative discovered him and had him placed under my care, for temporary study and treatment, without any hope of permanent cure.

I found that mental diversion along new lines of thought was a very effective tonic. He was a man of intense convictions, and when they were concentrated along certain lines were very assiduous, and, lawyer like, he studied the subject from every point of view and was not satisfied unless his studies were very exhaustive. He became interested in garden vegetables and their growth and methods of perfecting them. The drink craze died out, and an intense desire to recover his lost energies by every possible means and methods possessed him. He left my care and went to work at market gardening, and consulted me every day as to how he could improve his body and brain. An elaborate system of hygienic care, of nutrition and the skin, sleeping rooms and exercise were suggested, which he followed literally. A year or more later he went into the market gardening business and started life again, with renewed energy and vigor, never once referring to his past, but only intent on the present. He was successful, acquired property, bought land, and developed several new methods of increasing the yield of vegetables.

He became philanthropic to all the men under him and in his neighborhood, employing tramps and helping them, contributing of his funds to every good work, and this went on for years and years. He was a marked man in his business, and for twenty-five years lived a most exemplary life, regaining his former vigor and health. He died from an injury received in an automobile accident. He was another example of the curability by the proper means and methods

of persons who were considered chronic and incurable to the last degree.

The same fact stands out here, that if in his former treatments the real conditions could have been recognized and positive psychical and physical means used, his cure and recovery would have followed much earlier.

A third example indicates some of the difficulties which are so discouraging as to repel all further efforts of help or means of restoration.

A man of thirty, who had been a gambler and barkeeper and lived in the sporting circles, had severe drink paroxysms, in which he was more or less dangerous, from the delirium and delusions, during these excesses. He was treated on several occasions, but after each there came a relapse. Under my care he was given an antisyphilitic treatment, with the very best results. Although he claimed not to have any specific disease, the Wassermann reaction proved it. It was evident that there was some central irritation at work in the organism which broke out from time to time, and the removal of this diminished the intensity of the paroxysm. He was a man of considerable ability, who was very much afraid of death. He was given psychical treatment and made to understand that, with his fullest cooperation, the drink storms might be averted. For many months he was very keen to discover the premonitory symptoms and take active treatment to avert the recurrence of the drink paroxysm. This was successful, and finally he left with a dreaded consciousness that they would return unless prevented by the most strenuous efforts on his part.

During the next year he relapsed, was treated, recovered, and in a few months relapsed again, and became more violent than ever. He was sent to an insane asylum. For the next three or four years he seemed to have lost all desire to recover, and at intervals was melancholic and suicidal. His friends despaired of any change in his future. Finally he was arrested for assault, and came under my care for temporary relief, awaiting the legal consequences of his conduct. The same means and measures were again applied, and this time specific treatment and pronounced eliminative measures were followed up continuously. The results were very satisfactory. The man went out on probation, began life again, was employed by a large manufacturing firm and worked very steadily for many years, with great satisfaction and success.

He was thoroughly cured, in the sense of being restored back to a useful life again.

Here the same fact appeared, that on the recognition of the real

causes and the application of preventive means and measures, restoration followed. These are by no means unusual instances, and can be duplicated in the history of every scientific hospital or sanatorium where such cases are treated. They show beyond question a field for restoration and cure that is practically unoccupied at present. There must be no theories in the study of these cases. It is simply the facts and their meaning, and the more thoroughly these are studied the more prominent becomes the physical causes which are both active and predisposing in the drink and drug neurotics. Every person of this class should be made a scientific study, and there is as much interest and real fascination in the discovery of causes and conditions which have culminated in the craze for drink as that of any other field.

Researches in bacteriology and discoveries of chemical metabolism are far more uncertain and intangible than the study of causes which make borderland victims of so large an army of men and women in this country.

They do not need elaborate buildings or appliances. They can be studied in every home and in every neighborhood, and often actual means and measures can be applied in the most satisfactory way. To give them over to reformers and clergymen is to ignore a most fascinating field of physical and psychical research work that is about our doors, only waiting for the genius to discover it.

ACTION OF CORPUS LUTEUM UPON THE MAMMARY GLANDS

BY ISAAC OTT, M.D., *Professor of Physiology*

AND

JOHN C. SCOTT, M.D., *Lecturer upon Physiology*

Medico-Chirurgical College of Philadelphia

All workers agree as to the presence of a hormone increasing the size of the mammary glands—for Lane-Claypon and Starling, it is in the fetus; for Foà, Biedel and Koenigstein, it is also in the fetus; Bouchacourt, Lederer and Prizbram and Basch, it is in the placenta; Ancel, Bouin, O'Donoghue and others, it is in the corpora lutea.

Ott and Scott¹ were the first to show that injections of an extract of corpora lutea and certain other extracts increase the secretion of milk to a marked degree.

Mammary gland enlargement and the quantity of milk secreted should stand in direct relation. But in virgin animals the breasts do

1. Ott and Scott.—Soc. Exp. Biology and Medicine, Feb., 1902.

not contain milk, and the effect of the internal secretions upon their mammary hypertrophy is yet to be determined.

Foges² found that the uterus was not a factor in the pubertal growth of the mammary glands. Aschner and Grigoriu³ found that the effect of injecting placental extract into virgin guineapigs was followed by a development of the mammae, succeeded by milk secretion.

Fellner⁴ found that extracts of corpus luteum and placenta, when injected, caused hypertrophy with production of milk in the mammary glands.

Solovjev⁵ presents a preliminary report on the effect of ovarian extract on the mammary glands of guineapigs, and gives the following conclusions:

(1) Ovarian extract is toxic to pregnant and nursing guineapigs, but has no effect on others.

(2) Extracts of corpora lutea have no effect on either pregnant nor nonpregnant guineapigs.

(3) Subcutaneous injection of ovarian extract causes secretion of colostrum in females that have borne young once or oftener. In multipara the mammary glands are enlarged.

(4) Injection of the extract of corpora lutea has no such effect.

(5) Injection of ovarian extract and the extract of the corpora lutea into nursing animals and animals that have ceased to nurse does not produce any increase in the secretion of milk, nor does it prolong the period of lactation.

At puberty the mammary glands enlarge more or less permanently. In menstruation the mammary glands also increase in size.

Hammond and Marshall⁶ have shown that hypertrophy of the mammary glands ensues on about the nineteenth day of coition in pseudopregnant rabbits by a definite secretion of milk. This mammary hypertrophy can ensue in rabbits from which the uterus has been removed while still immature. The development of the corpora lutea are a necessary factor in causing and maintaining the raised trophy and hyperemia, followed by extravasation of blood.

The uterine changes are comparable to those which occur in true pregnancy and afford confirmation of the view that the corpora lutea are a necessary factor in causing and maintaining the raised nutrition of the uterus during the first part of the period of gestation.

2. Foges.—Centralblatt f. Physiologie, Vol. 10, 1905.

3. Aschner and Grigoriu.—Archiv f. Gynakol., Vol. 94, 1911.

4. Fellner.—Archiv f. Gynakol., Vol. 100, 1913.

5. Roussky Vratsh, April 7, 1912.

6. Hammond and Marshall.—Proceedings of the Royal Society, B. Vol. 87, p. 422.

Our experiments were made upon virgin rabbits. The corpora lutea of the cow was rubbed up with sterilized water and injected hypodermically every three days for a month. The rabbits were of the same size. Care was taken that no sepsis ensued from the injections.

Dr. Scott makes the following report of an examination of the mammary glands:

Macroscopically:

The glands were more than twice as large as those of the control animal and contained milk, which in control did not exist. The glandular tissue was a deeper grayish color, that of the control was pale and less vascular.

Microscopically:

The injected glands showed a markedly increased number of parenchymatous cells with a lessened amount of connective tissue. The cells were larger and had a deeper staining and more granular protoplasm than the control glandular cells. The nuclei were correspondingly larger.

UNSYMMETRICAL DEVELOPMENT OF CHILDREN

By EDWARD A. BOGUE, M.D., D.D.S.

New York

Most babies are born in good condition; therefore, when the first teeth appear they frequently seem normal and regular, but between birth and the sixth year things often occur that change regularity into irregularity, so far as the visible teeth are concerned, but in addition to this, by affecting those teeth which are as yet hidden, viz., the second or permanent set, the development of the face and head, and through these the whole body, is faulty.

The child in the best health and with the greatest vigor becomes the most beautiful child; and as he grows toward manhood he remains active; his eyes, nose and teeth are all properly formed and placed. He masticates well and uses food that requires mastication. He does not snore nor catch cold from a trifling exposure.

Activity makes him inhale deeply, makes him fill his lungs with air and enlarges the chest, straightens and broadens the shoulders, and by the suction of the lungs eases the work of the heart to such an extent that, instead of straining and wasting much of its force to drive the blood through the lungs, it can easily carry the blood to the most distant extremity, and by the very nutriment which that well ventilated blood affords the development of the various parts







of the body is more rapidly and more easily brought about, and all proceeds so symmetrically and harmoniously that when adult life is reached their regular features, regular teeth, a good voice, a correct enunciation and resonant speech all combine to make him as beautiful as his type will allow.

The converse of this is equally true. The child who has not good health is somehow handicapped. If instead of being active he is languid, if either eyes, nose or teeth are not properly developed, it means that there has not been power enough in the developmental machinery to do the work, and so there has been what is known as an arrest in development. Well, what does that mean, except that the heart has not had the power it needed?

This lack of power may result in the eyes being at different levels, in deafness, or other ear troubles, in partial stoppage in the air passages of the nose, in irregularity in position of the teeth, or in very pronounced cases, in mouth breathing.

Such a child, as he grows toward manhood, *cannot* have continuous good health; he cannot be always active and lively; he cannot, unaided, catch up with the development that normally ought to be his, because that development was for a time arrested, and he goes on, in a languid sort of way, to develop as best he can, a man who is almost surely of slouching gait, unerect shoulders, prone to catch cold, of irregular features, irregular teeth, defective arch of the palate, therefore unable to clearly enunciate, or to make his voice carry to a great distance.

Many clergymen cannot make themselves heard in a large church; many lawyers have to confine themselves to an office practice.

If the child's dental arches are narrow, the air passages of his nose are sure to be narrow also, and there will not be a good supply of oxygen for the blood, the lungs will not be fully inflated, and the chest cavity, that contains the heart, that great force pump of the body, will not be sufficiently expanded either.

Now it so happens that an arrest in development involving irregularities among the teeth, as well as a diminished nasal passage, can generally be overcome mechanically, through operations on the temporary teeth of young children. The bony system is largely developed through the activity of muscles that are attached to the bones. The bones of the face and jaws are no exception, but they also need the stimulus of proper mastication. The brain of the average child weighs, at birth, 371 grams; at six years of age it weighs 1,360 grams; and at ten years of age the brain weighs 1,400 grams, a gain of only 40 grams from the sixth to the nineteenth year

of life, during which time the body makes its greatest effort of development.

All deformities, therefore, whether of the hipjoint, club foot, chin, jaw, teeth, nose or face, should be corrected before the sixth year of life, for much can then be done practically without pain in a comparatively short time and with much greater certainty of success, because it is all accomplished during the years of most rapid growth, and Nature is aiding all the time, instead of being an obstruction.

Dr. Lorenz refuses to replace a dislocated hip joint after five years of age, finding the surrounding parts too rigid and unyielding to insure success.

For precisely the same reason operations to prevent small nasal passages, crooked nasal partitions, irregular teeth, a high arched roof of the mouth, a retreating chin, or a chin that projects like the jaw of a bulldog, should all be undertaken and completed, if possible, before the sixth year of life.

Irregular teeth can often be brought into line at this early age by the use of a little curved wire arch, or by other appliances.

This curved wire can also be made to spread the nasal passages and increase their size from before backward, thus obviating the necessity for breathing through the mouth.

By spreading the temporary teeth early enough in this manner, the crowns of the permanent teeth, which are held by the roots of the temporary teeth, are drawn into the positions which they ought to take. In this way very many irregularities may be prevented which would otherwise be inevitable, and the benefit of proper mastication from good occlusion (proper closing of teeth) will be of great importance.

Previous to 1900 little, if anything, was known as to the influence of the first or temporary teeth upon the permanent ones, and the most recently published works on orthodontia do not enlighten us on the subject.

Every mother should ask her family physician to recommend a dental surgeon who is *competent to treat temporary teeth*; this dentist should carefully examine each child as soon as it reaches its fourth or fifth year to see if the teeth are healthy and the arches correct.

If they are not, he should be requested to make them so.

There are dentists who are qualified to do this, and so prevent a deformity later on.

There are others who go so far in the wrong direction as to neglect the temporary teeth, seemingly not realizing that upon their good condition largely depends the position of the permanent teeth

and the condition of the surrounding parts, and through them the health and beauty of the teeth, of the face, the efficiency of the breathing apparatus, and so of the whole body.

Some have even advised waiting until the permanent teeth are fully grown before undertaking their correction, thus confirming irregularities and deformities. It is the special function of the orthodontist to correct these defects.

There are two conditions which most call for the attention of an orthodontist at this early age (four to six years), projection of the upper or lower teeth, or failure of the temporary teeth to spread apart laterally, especially the six front teeth. At five years of age these teeth can generally be spread apart in from fifteen to ninety days at small expenditure of time or money and without pain, if the child has been well brought up and has not been frightened. After six years of age one can never be sure of results under two years, although the actual movement may have been made in two months. The teeth *can* be drawn into position after the patient has reached adult life, but they will never be as firm and the adjacent parts will never as well adapt themselves to the new conditions *if the period of growth is passed*.

The longer one waits, the greater the expenditure of time, money, and possibly of pain, and the greater uncertainty of the teeth remaining in the positions into which they have been brought.

At five years of age, sometimes later, it is still possible to spread the crowns of the permanent teeth by spreading the temporary ones rapidly, but when the temporary teeth begin to fall out there is nothing to attach rapid spreading fixtures to but the permanent molars; besides, if the temporary front teeth are still in the mouth at six and a half or seven years of age, that is an evidence that an arrest in the normal development has taken place, and it is generally best to resort to the ordinary methods of orthodontia.

The American Practitioner

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

JOHN W. WAINWRIGHT, M.D., EDITOR

Address all communications to
JOHN W. WAINWRIGHT, M.D.
80 Washington Square E., New York

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EDITORIALS

CONTEMPLATION OF THE BACK OF ONE'S NECK

Plus the lessons learned therefrom, otherwise this writing would be totally valueless. Other men have had carbuncles, but have learned nothing; but this particular one on the back of my own neck has been the means of impressing much valuable information, both upon what to do and what not to do. As the Arab proverb says, "I am what I am, and what I have experienced I know" (or have lived). In the first place, freezing with ethyl chloride is a common method of producing anesthesia for the crucial incision and curettage. It is an intensely disagreeable process; it does relieve the pain of the cutting; it is painful in the thawing out, and the effect of the actual incision through the frozen tissue is exactly the same as a whack from a policeman's club upon the back of the neck. One for each line of the incision. Take it all in all, with the feeling of contraction exerted upon very sore and swollen tissues during the freezing, and the stinging and smarting during the thawing, it certainly is not a pronounced success as an anesthetic.

If one wishes to use freezing as a means of producing local anesthesia, the tingling of the thawing which ensues may be avoided by painting the wound with Agnews or Shufords pile solution. These are analgesic, germicidal, and act for a length of time which may be reckoned in seconds. Ethyl chloride or freezing mixtures are prop-

erly used to render a very small area insensible; into this a hypodermic needle should be introduced by, or with, a rotary motion, and the infiltration of small successive areas with novocain or stovain may be readily performed. Nor need one fear overdosage, because the crucial incision makes an outlet which is enlarged by the curettage, and the escaping blood washes the injected anesthetic away before complete absorption takes place. This method does require an additional ten minutes, but the blissful relief to the patient is worth it. Having experienced both ways, it is quite natural that the better one, from the patient's standpoint, should be selected, especially as this is written before a sharp experience has lost its acute edge.

DOUGLAS H. STEWART, M.D.

AMBIGUITIES AND FALLACIES ANENT THE MANN ACT

It is extremely unlikely that any one endowed with average human intelligence would exhibit the temerity to offer the slightest criticism anent the enactment or attempted enforcement of any legislative act the avowed purpose of which was the safeguarding of juvenile or other femininity, provided there was the least suspicion of certainty that by the invocation of such legal enactment chastity could in any reasonable measure be conserved. The unfortunate fact remains, however, that in *rerum naturæ* any legal attempt to prevent or minimize mental and moral obliquity, or to regulate or check sexual promiscuity among the masses, must necessarily eventuate in dismal failure, the reasons for which are too obvious to even require enumeration. It has been conclusively proven that legislation is utterly impotent as a conserver of public morals.

To those familiar with the subject the statement requires no specific emphasis that prior to 1910, under false pretenses of divers and sundry character, thousands of alien females were imported into this country for undoubted immoral purposes, and accumulated evidence indicates that thereafter many of them were bartered and sold into literal bondage or slavery. The international traffic in women thus assumed such gigantic proportions, and the emoluments accruing to those engaged in the nefarious practice became so alluring, that the establishment of similar methods of interstate and inter-

urban traffic in this country was inevitable. The enormity of the later, however, remained practically unrecognized until legislation seemed imperative for suppression of the international variety of such traffic. The so-called Mann Act, which was originally formulated for the express purpose of meeting this contingency, was so extended as to include interstate traffic in women, and the inappropriate and misleading designation "white slave" was originated. Since then unwise and unwarranted distortion of definition has caused the term white slave to become synonymous with prostitute. The pertinent facts appear to have been ignored that the word prostitute signifies a female who, of her own volition and for monetary consideration, promiscuously offers herself as a means for the sexual gratification of others; whereas the term slave literally represents an individual in bondage, i.e., one subject to the will of another without freedom of independent action, and whose services are entirely under the direction and control of another. Obviously, therefore, a slave need necessarily be neither a prostitute nor a woman; while, on the other hand, a prostitute must necessarily be a female!

Regardless of the original intent and purpose of any legal enactment, the inherent ambiguity and distinct absurdity thereof become manifestly obvious when its literal interpretation permits imposition of the maximum prescribed penalty upon one *particeps criminis*, whereas another of apparently equal guilt is granted immunity under its provisions; and when in another instance where the circumstances are identical, with possible exception of geographical location, the law becomes absolutely inapplicable, and consequently inoperative, therefore conviction cannot be secured nor can penalty be imposed!

The foregoing may appear strangely contradictory, but literal interpretation in actual operation of the so-called Mann Act renders such *contretemps* inevitably certain, e.g., when any woman, be she confirmed prostitute or otherwise, willingly accompanies a man from one State or country to another, if the provisions of any law be thereby violated, there would certainly appear equal guilt upon the part of both; yet the male may be prosecuted, convicted and sentenced to penal servitude, whereas the female is granted impartial

immunity; on the other hand, any woman, be she virtuous or otherwise, may repeatedly accompany men from one city to another in the same State, yet the securing of such transportation does not constitute an infraction of the law!

Proof of seduction or attempted violence upon the body of the female is unnecessary to secure conviction of the alleged abductor, the mere fact of his being responsible for her transportation is sufficient; nor is evidence that for years the female had been a confirmed prostitute considered pertinent. Conviction of the male has even been secured where it was shown by the preponderance of evidence that the female furnished the necessary funds to defray all expense incident to the transportation of both herself and her alleged abductor!

In a certain rather celebrated case a man who secured the transportation of a female from her native State was prosecuted and convicted, whereas the one who paid the expense of her return transportation was not molested! In another instance two men were promptly convicted for accompanying a married woman from one State to another and remaining there in her company for a brief period. The most glaring miscarriage of justice, however, occurred where a man was convicted for befriending and financially assisting a homeless and starving woman. At her earnest solicitation the man, without ulterior motive, secured transportation for her from one State to another, it being merely the performance of a kindly act of charity by one human being for another who happened to be unfortunately situated.

It is impossible of belief that any law, by the invocation of which a human being may be deprived of liberty under circumstances such as those cited, can possibly be constitutional. There can certainly be no justification for the application of such a law either *de jure* or *de facto*; nor can it be shown that benefit accrues to anybody from conviction and imprisonment for alleged infractions thereof.

Such outrageous, assinine and totally unwarranted judicial decisions forcibly remind one of the Dark Ages, when legal enactments were hopelessly submerged in and utterly subservient to ancient superstitions, when seemingly otherwise intelligent people implicitly believed in the trickery of witchcraft, when women presumed to be

"possessed of devils," and thus capable of working incalculable harm in the community, were subjected to indefinite terms of imprisonment or summarily burned at the stake!

SPECIFIC DIETS

The difficulty in prescribing a diet is an effort to obtain a list of foods which will exert a specific action on the disease, but experience teaches us that as we have no specific diets, the principle to follow must be that which will best suit the individual case, for diet, like medical treatment, is not yet developed sufficiently to claim specifics. A general knowledge of the food, its constituents and mode of digestion, assimilation and, in so far as may be determined, the metabolic changes, accompanying its use must be studied; and this, coupled with the pathological changes taking place or having been produced, will indicate a proper individual or class of foods appropriate for the condition. There the proper control of the functions must receive especial attention, for it would be unwise to order a diet of difficultly digested foods for one with altered gastric function, or foods which increase peristalsis in intestinal disturbances accompanied with looseness of the bowels.

Predigested foods, if they really exist, may so change the digestive function through lack of the normal exercise of the stomach and intestines as to result in imperfect action when the period of rest shall no longer be desirable.

Rectal feeding should only be undertaken in extreme cases, for it is never satisfactory, besides being unnatural, can but lead to altered functions, while there is a tendency to organic changes which may tax the skill of the physician to correct. When resorted to, it should be discontinued at the earliest possible moment, the food being directed to proper channels.

MEDICATION AT MENTAL HOSPITALS

The problems in medication at mental hospitals lie in refinement of the use of drugs for purposes of elimination, in decreasing auto-intoxication, and in rectifying pathological action of the internal

secretions. In eliminating substances of the body, writes Donald Gregg, *Boston Medical and Surgical Journal*, September 24, 1914, there is ample chance for skilful medication. There are cases needing mechanical relief by enemata, cases needing to have the fluids drained off by purges, and cases that are already desiccated and in the need of more fluid, although still requiring relief from intestinal stasis. There are acute cases that may even need to be bled to reduce their fluids; or to have lumbar punctures done to lessen an excessive amount of cerebrospinal fluid. There are cases when autointoxication arises from infected teeth, or tonsils, or from misplaced and adherent intestines. There are cases when presumably the thyroid, thymus or pituitary glands, or the reproduction organs, are not functioning properly. In all of these directions lie problems in medication for cases in mental hospitals.

General hospitals have many lessons to learn from mental hospitals, especially in the management of deliria. Not the least of these lessons is that depressants, stimulants and restraint lessen, whereas baths, packs and elimination greatly increase, a patient's chance for recovery.

SNEEZING IN PUBLIC PLACES

It would seem that sneezing in public, as well as in our homes, is so common an offence, and so frequently indulged in without the safeguard of the protecting handkerchief, that no one feels called upon to utter a protest. Society, individually and generally, is altogether too tolerant of these vulgar, shameless and ignorant people. To add insult to injury, they not only fail to protect the face, but sneezers must prolong the explosion. Such persons should be taught, if it be possible, that such vulgar habits are exceedingly dangerous to others, for many disease producing microorganisms,—the pneumococcus, meningococcus, streptococcus, diphtheria bacillus, tuberculosis bacillus, influenza bacillus and numerous other pathogenic organisms—are discharged from the nose, to be breathed by those present or near by, and thus the sneezer becomes a menace to individual as well as public health. If in a closed room, office, home, street car, or at public gatherings, churches, theaters, etc., every one present partakes of the danger.

By all means, if one must sneeze, whether in the presence of others or not, let him or her protect the nose and mouth with a handkerchief.

CORRECTION

Please insert following corrections in your copy of THE AMERICAN PRACTITIONER for September, 1914:

In the article by Sir James Barr, "Some Points on the Physiology of the Heart's Action and Their Bearing on Treatment, pages 443 to 455, are some errors which should be corrected. They are as follows:

On page 444, twentysecond line, read, Such as positive and negative.

On page 448, second paragraph, read, 120 to 60, instead of 120 to 80.

On page 448, fourth line from bottom of page, read, effective, instead of ineffective.

On page 448, second line from bottom of page, read, rhythmicity, instead of rhymicity.

On page 450, third paragraph, read, 60 grams, instead of 80 grams. and on same line, 150 mm., instead of 180 mm.

On page 451, third paragraph, read, 150 mm., instead of 180 mm.; same paragraph, fifteenth line, read, 60 grams, instead of 80 grams.

On page 452, second paragraph, read, 150 to 200 mm., instead of 180 mm.

On page 453, second paragraph, read, 320 mm. a second, instead of 380 mm.

On page 454, third paragraph, fourth line, read, 13-, instead of 1.3-. Same in fourth paragraph, third line.

These errors were due to faulty typewriting in the manuscript, corrections of which, owing to delay in receiving mails from Europe, did not reach us in time.

COURSE OF LECTURES AT THE NEW YORK SKIN AND CANCER HOSPITAL

The Governors of the New York Skin and Cancer Hospital announce the following course of lectures by Dr. L. Duncan Bulkley,

on Wednesday afternoons at 4.15 o'clock, on the Medical Aspects of Cancer :

November 4, Nature of Cancer.

November 11, Frequency and geographical distribution of Cancer.

November 18, Metabolism of Cancer.

November 25, Relation of diet to Cancer.

December 2, Medical treatment of Cancer.

December 9, Clinical considerations and conclusions.

Each lecture will be preceded by a half hour Clinical Demonstration of Dermatological Cases.

The lectures will be free to the Medical Profession on the presentation of their professional cards.

FUND FOR BELGIUM PHYSICIANS

We wish to call the attention of our readers to the announcement in our advertising pages to physicians of the United States for the purpose of raising a fund to help the physicians of Belgium. It would seem that there is extreme need for help, and we have no doubt but that members of the medical profession will generally respond. Small contributions only are asked for, an amount which can be easily spared.

It is hoped that there will be a generous response to this appeal for funds, which, it is obvious, is badly needed and will be gratefully appreciated.

Ignorance is visited as sharply as wilful disobedience—incapacity meets with the same punishment as crime. Nature's discipline is not even a word and a blow first; but the blow without the word. It is left to you to find out why your ears were boxed.—HUXLEY.

DIGEST OF CURRENT MEDICAL LITERATURE

Action of Drugs on the Bronchioles.—Jackson, *Journal of Pharmacology and Experimental Therapeutics*, Baltimore, May, 1914, found that arecolin produces immediate and profound bronchoconstriction. This can be readily overcome by epinephrin, etc. Small doses of atropin or hyoscin, or of the so-called duboisin, completely prevent the constrictor action of arecolin. Arecolin is very much more active than pilocarpin, both on the bronchioles and on the heart. The action of arecolin tends to pass off much more quickly than that of pilocarpin. Hordenin is a very active bronchodilator. This action depends on a stimulation of the sympathetic nerve endings. It stimulates the heart and produces a moderate, prolonged rise in bloodpressure. It will produce bronchodilatation after constriction has been established by arecolin, pilocarpin, B-iminazolyethylamin or thebain. The dilatation thus produced is usually of a more prolonged and lasting character than that produced by epinephrin. The rise in general bloodpressure is, however, only about one fourth to one sixth as great as that produced by epinephrin. B-iminazolyethylamin produces marked bronchoconstriction of direct muscular origin, and which hordenin, epinephrin, lodal, etc., may or may not overcome, depending on the extent and duration of the constriction and the quantities of the drugs administered. This practically amounts to a pitting of the direct muscular contracting action of the former drug against the indirect nervous bronchodilating action of any one of the latter drugs. The result in any given case will simply amount to the algebraic sum of these two forces. Lodal, 6.7 dimethoxy-2 methyl-3-4, dihydroisoquinolinum chlorid, produces a moderate bronchodilatation after constriction produced by arecolin, pilocarpin, and sometimes by B-iminazolyethylamin. This dilatation is apparently partly, but probably not wholly, due to the liberation of epinephrin from the adrenal glands, which has been shown by others to occur. Hydrastinin has a similar but weaker action. B-tetrahydronaphthylamin produces moderate bronchodilatation after pilocarpin, etc. There is also a marked rise in bloodpressure. Thebain produces profound bronchoconstriction. This is of direct muscular origin. It may be overcome to a considerable extent by hordenin or epinephrin. Lodal is much less effective. This intense bronchoconstriction is probably rather closely associated with the strychnin like convulsions observed by

Magendie, Bernard and others. The amount of the prescribed therapeutic dose appears to be well within the limits of quantities which may be expected to produce distinct bronchoconstriction in the human subject. Ergotoxin possesses no very marked specific action of its own to the bronchioles, either in the way of dilatation or constriction, when injected intravenously into spinal animals. And all other drugs tested out, arecolin, pilocarpin, thebain, epinephrin, lodal, hordenin, act in a perfectly normal manner on the bronchioles after enormous doses of ergotoxin have been injected intravenously. So far as the action of drugs on the bronchioles is concerned, the conclusion is reached by Jackson that bronchoconstrictor nerves always respond true to the vagus type, and bronchodilator nerves always react in a manner exactly analogous to that of the visceral thoracico lumbar sympathetics. But the relative extent of these reactions with various drugs may vary through rather wide limits.

Further Studies of the Thompson-McFadden Pellagra Commission; Summary of the Second Progress Report.—Surgeons J. F. Siler, U. S. Army; P. E. Garrison, U. S. Navy, and W. J. MacNeal, M.D., New York, in the *Journal American Medical Association*, September 26, 1914, give the following summary:

1. The large active foci of pellagra in Spartanburg County were found in and near the large centers of population, and particularly in the cotton mill villages.

2. Children under the age of two, adolescents for about five years following puberty, and adult males in the active period of life were least frequently affected by pellagra. On the other hand, women from twenty to fortyfour years of age, old persons of both sexes, and children from two to ten years of age were most frequently affected.

3. No definite connection between occupation and to occurrence of pellagra has been found, although the high pellagra morbidity in the women and children points to the home as the place in which the disease is usually contracted.

4. In the group of incident cases most thoroughly studied, evidence of close association with a preexisting case was disclosed in more than 80 per cent.

5. A house to house canvass of the homes of over 5,000 people living in six endemic foci of pellagra failed to disclose any definite relation of the disease to any element of the dietary.

6. In these six villages new cases of pellagra originated almost exclusively in a house in which a preexisting pellagrins was living,

or next door to such a house, suggesting that the disease has spread from old cases as centers.

7. So far as we have observed, pellagra has spread most rapidly in districts where insanitary methods of sewage disposal have been in use.

8. Additional evidence has been obtained to support the conclusion that flies of the genus *Simulium* have nothing to do with pellagra.

9. Animal inoculations and the experimental study of intestinal bacteria have not yielded conclusive results.

10. The studies of the blood have shown a lymphocytosis in most cases, but have not disclosed any constant abnormality characteristic of pellagra.

11. There is no evidence of inheritance of pellagra.

12. The immediate results of hygienic and dietetic treatment in adults have been good, but after returning to former conditions of environment most of the cases have recurred. In children, prognosis is very much more favorable.

Heredity.—William Bateson, *Lancet*, August 15, 1914, discusses the present day theories of heredity at considerable length, going into many of the observations which tend to discredit or to support one or another of the views as to the development of species and races. He concludes with the remarks: "As the evidence stands at present, all that can be safely added in amplification of the evolutionary creed may be summed up in the statement that variation occurs as a definite event often producing a sensibly discontinuous result; that the succession of varieties comes to pass by the elevation and establishment of sporadic groups of individuals owing their origin to such isolated events; and that the change which we see as a nascent variation is often, perhaps always, one of loss. Modern research lends not the smallest encouragement or sanction to the view that gradual evolution occurs by the transformation of masses of individuals, though that fancy has fixed itself on popular imagination. The isolated events to which variation is due are evidently changes in the germinal tissues, probably in the manner in which they divide. It is likely that the occurrence of these variations is wholly irregular, and as to their causation we are absolutely without surmise or even plausible speculation. Distinct types once arisen, no doubt a profusion of the forms called species have been derived from them by simple crossing and subsequent recombination. New species may be now in course of creation by this means, but the limits of the process are obviously narrow. On the other hand, we

see no changes in progress around us in the contemporary world which we can imagine likely to culminate in the evolution of forms distinct in the larger sense. By intercrossing dogs, jackals and wolves new forms of these types can be made, some of which may be species, but I see no reason to think that from such material a fox could be bred in indefinite time, or that dogs could be bred from foxes. Whether science will hereafter discover that certain groups can by peculiarities in their genetic physiology be declared to have prerogative quality justifying their recognition as species in the old sense, and that the differences of others are of such a subordinate degree that they may in contrast be termed varieties, further genetic research alone can show. I myself anticipate that such a discovery will be made, but I cannot defend the opinion with positive conviction.

Case of Poisoning by Scopolamin (Hyoscin) Hypobromate.—Mervin Tubman Sudler, *Journal American Medical Assn.*, June 20, 1914. On May 28, 1913, in the forenoon, W. R. P., man, aged twenty-one, consulted an oculist, who discovered that he had no homatropin to use in the examination. Calling by telephone a local drug store, he ordered some powders, each to contain $\frac{1}{2}$ grain of homatropin. The messenger appeared shortly with an envelope containing the supposed powders of homatropin. The oculist immediately made a solution by dissolving one of the powders in thirty drops of distilled water, a method used by him for obtaining approximately 1 c.c., omitting to read the label, which was small and inconspicuous. The label read "hyoscin hypobromate, gr. $\frac{1}{2}$." The patient then lay on a couch and three drops of the solution were dropped in each eye, so that about $\frac{1}{10}$ grain of scopolamin (hyoscin) hypobromate was administered in this way. In a few minutes he complained of dizziness. While he managed to stagger to a chair, he immediately threw himself back on the couch, on account of his sensation of dizziness and faintness. His pulse at this time was beating at the rate of 150 a minute, and at times it was too indistinct to be counted. He was actively delirious, having delusions of playing baseball—from his conversation, apparently with much interest. He was closely watched and received $\frac{1}{30}$ grain of strychnin hypodermically. No other medication was employed. His condition gradually improved, so that by 4.30 o'clock his pulse was reduced to 110 and was stronger. He was then removed to the hospital. He was still delirious and seemed to realize that he was talking irrationally, but said he was unable to control it. By 7 o'clock his pulse was 86,

his respiration 18, his temperature 99.4, and he was practically rational. On the following day, at which time I first saw him, his pulse varied from 60 to 80 and his temperature reached 99.2. No trace of his mental confusion remained. He left the hospital on the third day. While he has worried somewhat about himself since the occurrence, there is no evidence that any permanent injury has resulted from his large dose of scopolamin hypobromate.

Dietetic Disorders in Infants.—Eric Pritchard, *Lancet*, May 16, 1914, discusses some of the common errors in diagnosis and treatment of these conditions, laying particular stress on the importance of considering disturbances of the motor functions of the alimentary canal. Many cases of so called indigestion are intractable to treatment because they are not recognized as being due to a perverted or incoordinated action of the motor functions, a result dependent more on habit than on the particular qualities of the food which, for the time being, the infant may be consuming. Errors in the diet of the earliest days of life may lead to symptoms which are called indigestion, but these symptoms may be perpetuated as bad habits long after the cause of them has been removed. The conditions which Pritchard describes, he believes, though originally produced by faulty methods of feeding, were wrongly ascribed to defects in the food and were wrongly treated by changes and alteration in the diet. There is only one cure for faulty habits of this kind, and that is re-education. Among conditions discussed are: Cardiospasm, with and without esophageal dilatations and diverticula; "rumination"; pyloric spasm; and spasm of various portions of the intestine. Diarrhea may often be due to an abnormal hypersensitiveness of the neuromuscular mechanism of the intestine. In cases in which diarrheal movements contain undigested curds, it can often be demonstrated that these curds are merely balls of mucus, and when the treatment is based on the idea that these are undigested milk, it is usually fruitless. Reflexes arising from violent sucking at a dry breast or on a nipple with too small an aperture may also lead to diarrhea. Constipation may be the result of a dulling of the rectal reflex through overstimulation by cathartics, from excess of fat, or from underfeeding. Colicky pains are usually due to spasm of the intestinal muscles or of some sphincter. The use of the X ray and bismuth meal is the most valuable means of diagnosing these motor disturbances, but a carefully taken history will usually give a clue to the primary cause which led up to the formation of a bad habit of action of the neuromuscular mechanism.

The Radical Treatment of Hemorrhoids Under Local Anesthesia.—*Internat. J. Surg.*, 1914. E. H. Terrell states that he is now performing most of his hemorrhoidal operations under local anesthesia. He uses novocain, or a combination of this with quinine and urea. Most of the patients are treated in the office and are enabled to continue their daily occupations.

The technic used is as follows:

The largest pile is brought down, cleansed with an antiseptic solution, and infiltrated with a solution containing 1 per cent. quinine and urea and about 1/10 per cent. novocain. A clamp is applied, and fine linen ligature is placed in the uppermost portion of the hemorrhoid, for here the main blood supply enters. In fact, the others are often discarded altogether. With a sharp pair of curved scissors the pile is cut off close to the ligatures, leaving sufficient room, however, to prevent slipping. The stump is inspected to see that there is no undue bleeding and returned above the sphincters. The patients should lie down for a few minutes and then may be allowed to go about their business. Seldom do patients treated in this way complain of pain. Occasionally there is a slight throbbing sensation for a few hours and some soreness, but quinine and urea often retains its anesthetic effect for several days and is sufficient to keep the patient comfortable, if a proper technic has been carried out. In four or five days after the first hemorrhoid is removed another is treated in the same manner, and so on in succession until the patient is cured.

The parts must be handled as gently as possible, for postoperative pain is often due to unnecessary traumatism. Another factor in the production of pain after operations for hemorrhoids is that portions of cutaneous tissue are included within the loop of the ligature.

Intestinal Intoxication.—H. Eppinger and J. Gutman, *Medical Record*, August 29, 1914, state that bases originate during the decomposition and putrefaction of organic matter and that differentiated aminoacid bases are produced by bacteria in pure culture form, suggesting that poisons discovered by them in the intestinal canal originate in bacterial activity. This presumption was further strengthened by the recent discoveries of Mellanby and Twost. Demands from the clinic and the bacteriological laboratory for practical applications of these important discoveries, the authors say, are numerous. Should it be definitely proved that many of the bases are of vital importance to the economy, such proof would constitute additional evidence of the symbiosis of bacteria in the animal body. They also considered this question from another point of

view: whether these bases originating in the intestinal canal, and having properties similar to the hormones of the secretory system, are not substances distributed to the organism to exert their influence upon the vegetative system. Experimental pathology has already utilized this principle by employing histamin to antagonize adrenalin. It may also be assumed that histamin is not the only base formed in the intestines, but that numerous others originate there. At present the authors believe that they have been able to prove, with reasonable certainty, the presence under pathological as well as physiological conditions of poisonous aminoacid bases, and, to a certain degree, their importance. If these bases really do play such an important rôle, we must ascribe to the intestinal canal the powerful effect of a gland with internal secretion acting upon the general circulation. They desire not to assume over or under function of the intestinal organs; what they wish is to emphasize the fact that aminoacid bases do exist in the lower bowel, and that their elimination is brought about in the feces.

Aerial Conveyance of Infection.—As the result of experience, Thomson and Price, *Lancet*, London, June 6, 1914; abst. in *N. Y. Medical Journal*, July 11, 1914, assert that they could treat infectious diseases in one ward, almost certainly with perfect safety, were they to select the day of the disease on which to admit them. They are in some doubt as to the conclusions to be deduced from their experiences, but feel satisfied that the treatment of these diseases is more satisfactorily carried out in an open ward than in a cubicle ward, that is, rooms with incomplete partitions between the patients. It is open to perfect supervision, everything that is done can be seen by the staff. For the treatment of diseases when they are not conveyed by air, such a ward is also possibly better than box wards (rooms with complete partitions). The ward is a thoroughly well ventilated one, and ample space is allowed for the patient.

Thomson and Price believe further that their experience with scarlet fever goes somewhat strongly to show that the infection is probably not air borne. The evidence as to whooping cough is less definite. The whooping cough infections occurred in summer, when the ventilation was even more free than in winter. The infection of measles is probably air borne early in the disease, but the power of infection soon passes. They are inclined to think that the infection of chicken pox is air borne early in the disease, but their experience goes to suggest that on and after the third day it is

probably not air borne. For many years they have held that diphtheria infection is not air borne. No cross infection arose from German measles or from mumps.

Keeping Pneumonia Patients Out of Bed.—Widmer, *Münchener medizinische Wochenschrift*, May 12, 1914, relates that ten years ago, at a conflagration in a village, the men fighting the fire were so chilled and exhausted that between the ninth and thirteenth days thereafter eight developed extremely severe pneumonia, delirious from the first day. As the distances between the farms were so great, he was unable to spend much time with any one patient, and the families were in great distress with their delirious sick men. To aid them in tending the sick at night, Widmer had the sick men dressed and allowed to be up at night. To his surprise, he found that great improvement in the delirium and in the condition generally followed as soon as the men were thus dressed and up. Analyzing the conditions convinced him that the subconsciousness called into play by the acts of dressing, walking about, and especially by rocking in a rocking chair, steadied the higher brain functioning, and this in turn steadied and regulated the bloodpressure and other vital processes. Since that time he has made a point of thus calling on the subconsciousness in treatment of pneumonia, and has found it a great help in fiftytwo cases thus treated. He compares conditions to the difference in the effect when water is poured into a glass held in the hand in a moving railway car; it can be poured without spilling, but if the glass is standing on a solid table, it is almost impossible to pour the water into it without spilling.

Amebic Dermatitis.—L. B. Keng, *Journal of Tropical Medicine and Hygiene*, July 1, 1914, describes this condition as beginning in the form of minute papules, red and hard, discrete, and very suggestive of variola, but unaccompanied by fever. Vesicles which may attain the size of a small pea appear in one or two days. The discharge forms a crust like that of vaccinia. Each papule ultimately breaks down, and may then heal up or leave a depressed ulcer. Rarely the parasites spread widely and cause a diffuse spreading erythema, with pus in the subcutaneous tissues. In fresh papules only small amebas with fine granules are visible; but in the thick pus from larger cavities large amebas, with conspicuous granules, vacuoles and ameboid movement, and apparently indistinguishable from *Entameba histolytica*, are to be seen. The disease causes itching. It tends to heal of itself. Amebas are generally found in the stools. Patients may or may not have had dysentery. Usually

the disease first appeared near the anus. It may exist anywhere, but is mainly seen on the buttocks, spreading thence to the back, limbs, face and trunk. Septicemia, abscesses, cachexia and renal complications may result from its extension. Hypodermic injections of emetine hydrochloride are indicated in the treatment of extensive invasions in the skin and subcutaneous tissues. Superficial ulcers are best treated with ointments of ammoniated mercury or of sulphur.

Flat Feet, and What They Lead to.—*New Orleans Medical and Surgical Journal*, 1914. P. A. McIlhenny describes the two main arches and taking depression of the longitudinal arch. He states that in order to get rid of painful symptoms the foot is abducted beyond the weight bearing angle until the whole leg is rotated outward, this in time causing a stretching of the capsules and ligaments on the inside of the knee, a position of flexion, and genu valgum.

As a result, the head of the femur is rotated forward, producing a stretching of the anterior ligaments and a consequent laxity of the posterior portion of the capsule and the ileofemoral ligaments; this in time allows the pelvis to sag backwards, carrying with it the sacrum and lumbar spine, producing pressure on the anterior portions of the vertebra, a pinching of the vertebral discs, and a stretching of the posterior ligaments of the lumbar and lumbosacral spine, producing lumbar pain simulating sciatica.

To compensate lumbar lordosis, there is a forward bending of the dorsal spine with a depression of the sternum and chest wall. Going hand in hand from thoracic to abdominal breathing, he shows the resultant enteroptosis. He considers the most prominent symptoms to be chronic backache, chronic constipation, nervous irritability, and sometimes digestive disturbances. He reports five cases in which the patients, although they had had deformities in their feet, presented themselves for treatment for discomforts above described.

Rectal Cases Under Local Anesthesia.—J. F. Saphir, *New York Medical Journal*, May 9, 1914, prefers the use of quinine and urea hydrochloride as a local anesthetic. This is not followed by the toxic symptoms, the cold sweat, the feeling of faintness and the excruciating after pains that usually follow the use of cocaine or beta-eucaine. The anesthesia produced by quinine and urea hydrochloride solution takes place within three to twenty minutes, and lasts for a period of three to ten days after the operation, a sufficient time to allow the wounds produced by an ordinary rectal operation to heal. Even the distention pain caused by sterile water or saline

solution is avoided when quinine and urea hydrochloride solution is used. Rectal cases in which local anesthesia is feasible are: (1) Thrombotic hemorrhoids, (2) skin tags, (3) external hemorrhoids, (4) fissure ani, (5) ulcers of the anus, (6) dermoid cysts, (7) rectal polypi, (8) tight sphincter ani, (9) some cases of fistula ani, and (10) some cases of prolapsus ani. Rectal cases in which local anesthesia should be preferred are: (1) Patients who refuse to be operated on under general anesthesia, (2) patients who cannot afford to absent themselves from their place of business or from their social duties for one or two weeks, (3) patients who are sufferers from some cardiac, nephritic or pulmonary affection.

Current Vaccine Therapy.—A. P. Hitchens, *Interstate Medical Journal*, May, 1914, says that problems of vaccine therapy at the present time are really problems in hydraulics. A certain area contains substances which should be removed; we have a high pressure main containing fluids which will remove them if the fluids can be brought to bear; we need information upon the possibility of opening up our channels of irrigation so as to effect the desired result. We need, first, a survey: How are the bacteria placed with regard to the barriers surrounding them? What channels are available? How can we best make the channels serve our purpose? Wright has already pointed out a number of accessory methods of value to the immunizator. His suggestions concern chiefly the use of sodium citrate for increasing the fluidity of the blood and physical and mechanical contrivances for increasing the flow of blood through the infected part. The author believes there are materia medica preparations which, if properly used, would be of equal accessory value. In the treatment of acne, for instance, would it not be possible by small doses of certain drugs to cause a temporary flushing of the face, which would be as effective as facial massage at prescribed times.

Clinicā Estimation of the Percentage of Glucose.—G. C. Parnell, *British Medical Journal*, July 4, 1914, has found that within certain limits the colors produced with Moore's test (boiling equal parts of the urine and liquor potassæ) vary in direct proportion to the amount of glucose present. This was confirmed by experiments in which known amounts of sugar were added to normal urine, and also by control tests by Pavy's method. It was found that samples of the boiled sugar solution would not keep, so that colored glasses have been prepared for each color from half of 1 per cent. to 4 per cent. Each glass is marked with the percentage of sugar,

the number of grains to the ounce, and the number of grains per 1,000 to which it corresponds. For accurate results, exactly equal parts of the urine and the liquor potassa must be taken, and they must be thoroughly boiled in a tube of from five eighths to six eighths of an inch in caliber. For urine containing more than 4 per cent. of glucose, the sample must be diluted with one or two parts of water before testing, as the colors above that for 4 per cent. cannot be distinguished with accuracy.

Two Instructive Cases of Rabies.—V. G. Ushakoff, *Roussky Vratch*, March 8, 1914, reports two cases of hydrophobia in women, the infection having occurred under peculiar circumstances. In one case a woman of thirty years acquired hydrophobia after handling a sick stray dog. As there was no history of a bite, the disease was at first diagnosed as hysteria. However, unmistakable signs of rabies finally developed and the patient died. An autopsy followed by animal inoculations proved the case to be one of rabies. In the other case a woman of twentyeight years developed hydrophobia after handling a pet dog supposedly suffering from a sore throat. As she treated the dog herself, her hand came in contact with the dog's saliva. The patient died with characteristic symptoms of the disease. No autopsy was performed. These cases prove that infection may occur as a result of mere contact of the bare skin with the saliva of a rabid animal, there being, presumably, a slight abrasion on the skin.

Economic and Social Study of Feeble-minded Women.—M. G. Schlapp, *Medical Record*, June 6, 1914, has made a statistical study of 281 cases, in which every fact is gleaned from actual life. It would be fruitless, he says, to attempt to indicate, item by item, what these defectives have cost the community in hospital expenses, court expenses, funds for foundling asylums, and actual destruction of the life, health and property of normal citizens. The data reveal that illegitimacy, attempted murder, theft, forgery, arson, prostitution, drunkenness, destitution and disease are salient features. Almost without exception, there is a history of incorrigibility, misery and waywardness. It is impossible to estimate what would have been the economic and social saving had all the women been apprehended when they were children and detained in segregation. It is becoming plainer year by year that the solution of the problems of crime and destitution is inextricably bound up with that of the problem of the feeble-minded.

Interference with Pathologic Phenomena Not Always Justified.—We have in the past too readily taken for granted that every unusual phenomenon observed in a sick person was, in itself, harmful; thus we have interfered with inflammatory processes, with pyrexia, and heightened bloodpressure, without realizing that these were, in a majority of cases, compensatory phenomena, implying active and probably quite efficient self defense on the part of the organism. "Think for a moment, any of you," says Sir James Goodhart, "your finger is on the pulse of excessive hardness; you want to make it permanently soft. Have you ever accomplished your purpose to your satisfaction? And if you answer 'No,' as I think you must, you may cancel your disappointment by asking yourself another question: 'If I had, where would the patient have been?'"

Secondary Anesthetic Fatalities.—Keil, *Deutsche medizinische Wochenschrift*, Berlin, May 14, 1914, has been analyzing and classifying 4,000 cases with general anesthesia given by various technics. There was no immediate fatality in any instance for which the anesthetic could be incriminated, but there were ten deaths which he thinks were the direct result of later injury from the anesthetic used. The first symptoms were observed the second day, with death the fourth day. The patients were between thirtyeight and sixtyone. His experience testifies to the smaller amount of anesthetic required when a mixing apparatus is used instead of the drop method. Preliminary scopolamin morphin did not display any advantage over the ordinary technic in respect to lesser requirement of the chloroform and ether. The exact figures of the average amount of anesthetic used with each method for the total 4,000 cases are cited.

Treatment of Pneumonia with the Neufeld-Handel Pneumococcus Serum.—A. Reuss, *Deutsche medizinische Wochenschrift*, May 28, 1914, has been unable to confirm the favorable reports of this treatment which have been made by the other authors. He has treated twentyeight cases of pneumonia and four of pneumococcus septicemia according to the method advised, giving the serum intravenously and using doses varying from 10 to 60 c.c. He found that doses of about 20 c.c. usually caused marked weakness and depression, with increase in rate and decrease in strength of the pulse. With doses of 20 c.c. he could observe no subjective improvement, and with none of the doses was there any evidence that the serum exerted any favorable effect on the course of the disease or reduced the frequency of complications.

Prevention of Pyorrhea Alveolaris and Furunculoses.—Using from 30 to 60 drops of sulphuric acid, diluted in 2 to 3 ounces of water, three or four times a day, the mouth to be well rinsed immediately after, Tweddell, *Medical Record*, July 4, 1914, found that the effect on boils and carbuncles in every case was astonishing, the astringent action being wonderful. Within twentyfour hours marked changes for the better were noted. Small doses are of no use, and if there is no improvement after fortyeight hours the dose should be increased. Improvement is so rapid that it is seldom necessary to continue treatment for more than eight or ten days, usually less. The patient in most cases can himself decide when to discontinue treatment. No gastric or other symptoms were ever noticed as a result of taking this drug.

Presence of Tetanus Germs in the Excrement of Horses.—J. Lukas, *Ztschr. f. Tiermed.*, 1914, XVIII, 17. By Surg. Gynecology and Obstetrics, June, 1914. Among seventeen horses the author found tetanus spores in the excrement of sixteen, which confirms the results of his previous experiments, showing that tetanus germs are almost always discharged with the feces of our large domestic animals; this explains their wide distribution. Lukas gives his own experience in growing the bacilli with independent improvements in the method. He calls attention to the pseudo forms of the tetanus bacillus, which cannot be distinguished from the true Nicolaier-Kitasato type morphologically, but only by animal experimentation.

Medical Diagnosis in Relation to Surgery.—*American Journal of Medical Sciences*, Philadelphia, May, 1914. The value of a medical examination, not only in obscure but also in plain, simple surgical cases, is emphasized by Riesman. He says that the physician might find diabetes, nephritis, grave anemia, bronchitis or serious heart disease, any one of which would influence the surgeon in his work. Many delayed deaths after operation might thus be averted. He also feels that in medical cases which may at any time assume a surgical aspect, the surgeon should be consulted long before an operation becomes imperative. In order to increase his diagnostic skill, the physician should make it a rule to be present at all operations on cases that have come before him.

Pathology and Prophylaxis of Rickets.—Winters, *American Journal of Obstetrics and Diseases of Women and Children*, July, 1914, says the cause of rickets is a faulty assimilation of salts. In normal

bone, sixtythree parts are inorganic, thirtyseven organic material; while in rhachitic bone there are only twentyone parts inorganic to seventynine organic. Whatever interferes with a proper amount of assimilation of salts will cause rickets. It does not depend upon poor hygiene in any way, but is entirely a matter of feeding, and the one way to avoid it is to have the baby nursed by the mother. The author very strongly condemns the use of evaporated, condensed, desiccated milk or whey powder, believing that every powdered, dry preparation of milk is a cause of rickets.

The Mentally Defective.—G. S. Mundie, *Canadian Medical Association Journal*, May, 1914, says that mental deficiency is a defect of the brain, not a disease. It cannot be cured, but the condition of the child can be improved to a greater or less degree by careful and suitable treatment and training. The greatest etiological factor is heredity; other important factors are the condition of the mother during gestation, tuberculosis, alcoholism and injuries after birth. All mental defectives should undergo a thorough medical examination, and any defect in vision, hearing or enlarged tonsils and adenoids should be corrected. Training should be carried out in institutions, and the teaching should be objective.

Pulmonary Edema.—Grober, *Deutsche medizinische Wochenschrift*, May 28, 1914, emphasizes the importance of stimulating the heart action, relieving it of some of its task by venesection in case of the full blooded, and by revulsion. Expectorants and narcotics are seldom needed, as there is already sufficient impulse to cough, and the usual accumulation of carbon dioxid in the blood has a narcotic action. These may fail, however, and each case should be studied individually. He gives an illustration of the preferable technic for intravenous injection of digitalis—there is no time to wait for its action by the mouth—and for venesection.

Bloodpressure in Pneumonia.—L. H. Newburgh and J. R. Minot, *Archives of Internal Medicine*, July, 1914, assert that the blood-pressure curve does not suggest failure of the vasomotor center in this affection. Low systolic pressures in pneumonia are not invariably of evil omen. Systolic pressure in the fatal cases tends to be higher than in those that end favorably. Bloodpressure measurements in pneumonia cannot be used as a basis for treatment. Prognostic inferences based on the relation of the systolic pressure curve to the pulse curve (Gibson's rule) were oftener wrong than right.

Autoserotherapy in Cancer.—Lewin, in *Therapie der Gegenwart* for June, 1914, reports two cases of breast cancer, with repeated recurrences, notwithstanding operative treatment, in which the subcutaneous reinjection of 2.5 drams (10 c.c.) of ascitic fluid obtained from the patients themselves resulted in apparent cure in both instances. The measure is recommended as an adjuvant to other treatment in cases of cancer with ascites.

Embarin.—M. Saloomonski (*Deutsche Medizinische Wochenschrift*, September 4, 1913) remarks that the rising popularity of which mercury is beginning to enjoy when its results are compared with those of salvarsan brings the other mercurial preparations into prominence again. Embarin is a mercurial preparation, soluble in water, and is injected daily for about twenty days. That the results are good are demonstrated by the fact that the Wassermann reaction becomes negative. Secondary action on the kidneys is not to be feared. Some patients react vigorously and with alarming symptoms after the injection, and since toleration is not produced its discontinuance in such cases is to be advised.

Basedow's Disease.—Halsted, *Bulletin of the Johns Hopkins Hospital*, August, 1914, in a long and careful paper, describes certain fulminant cases of hyperthyroidism in which even operations of the simplest nature, such as ligating one artery, taking ten minutes to do it, result fatally. In these cases he believes that the thymus gland and its secretion plays an important part. "From facts gleaned at the autopsy table, from animal experiments, and above all from the results following primary thymectomies," he is convinced that the thymus gland "may play an important part in Graves' disease and in some cases assume the title rôle. There can be but little doubt that the secretions of these two organs, the thyroid and the thymus, have an intimate relationship in the production of Basedow's disease." Halsted discusses the work and opinions of others on this subject, and gives details of his own work, and experiments. The article is a most interesting and important one.

THERAPEUTIC PROGRESS

Complete Sterilization of the Skin by Iodine.—Bove, *American Journal of Obstetrics and Diseases of Women and Children*, July, 1914, reports a series of experiments to determine whether bacterial growth was inhibited or destroyed by application of iodine. The skin was lightly painted twice with a three and half per cent. alcoholic solution of iodine (the patient being anesthetized for operation), and a strip four inches long by one half of an inch wide was removed. The results showed that the skin was sterile in practically every case, the few instances of growths being reasonably attributable to contamination. In five instances a vigorous culture of *Bacillus subtilis* was rubbed into the skin thirteen to eighteen hours before its removal and the area covered with a sterile dressing until the first coat of iodine was applied. In only one case did this organism survive. Bove believes that the first coat of iodine should be thick, as the penetration will probably be better.

Anesthesin.—Hotz, *Münchener Medizinische Wochenschrift*, July 21, 1914, reports on a few surgical cases treated with anesthesin. This is a powder, whose components are not mentioned, manufactured by the firm of Höchst. Anesthesin is designed to act as a local anesthetic for a considerable interval of time, and thus to prevent post operative pain and tenderness, and to remove causes for shock. In abdominal section before the sutures are placed a small amount of anesthesin is powdered into the wound, which is then closed according to ordinary technic. Hotz has used anesthesin in only a few cases. Sepsis did not occur. Post operative pain was diminished notably, so that the patients were able to move without discomfort and suffered little bodily and mental reaction to the operation. On the whole, Hotz concludes that anesthesin may prove of considerable value in post operative treatment.

Treatment of Urticaria with Adrenaline.—B. Scholz, *Zentralblatt für Herz-und Gefäßkrankheiten*, June 15, 1914 (abst. in *N. Y. Medical Journal*, July 11, 1914), reports a case of extremely severe urticaria, which had produced edema of the tongue and had rendered the patient sleepless for seventy-two hours, and which was relieved within a quarter of an hour by a subcutaneous injection of adrenaline. On the next afternoon there was a slight recurrence, which disappeared immediately after a second injection. His theory is that urticaria is due to irritation of the vasodilators, and that the treatment is purely symptomatic, depending on the stimulation of the vasoconstrictors for its effect.

Calcium.—MacCallum, Lambert and Vogel, *The Journal of Experimental Medicine*, August 1, 1914, removed a large part of the calcium from the blood by dialysis and were able to produce in an isolated extremity of an animal extreme hyperexcitability of the nerves quite like that observed in tetany. Furthermore, when the blood of a parathyroidectomized animal

in tetany was replaced with normal blood the tetany was relieved, but when replaced by calcium poor blood the tetany was not relieved. This seems further proof that the twitching and hyperexcitability of the nerves in tetany is due to the lack of calcium in the blood.

Formation of Glucose from Citric Acid.—*Journal of Biological Chemistry*, June 1914: The administration of sodium citrate to phlorizinized dogs and to a patient with diabetes mellitus was followed by an increased excretion of glucose, indicating the conversion of the six carbon atoms of citric acid into glucose.

Toxicity of Camphor.—A case is reported in which an eighteen months old child was given, after a meal, a teaspoonful of camphorated oil (linimentum camphorae) by mistake. While this dose must have contained about 15 grains of camphor, no untoward symptoms were observed.—*Jour. A. M. A.*, Aug. 15, 1914, p. 579.

Physiologic Rôle of Aminoacids and Their Quantitative Estimation in the Urine.—L. Lematte, *Presse Medicale*, December 10, 1913, considers it established that a given protein and a mixture of its constituent aminoacids are equivalent from the nutritive standpoint. The function of these acids in the economy is so important as to lead Delaunay to state that "the tissues require aminoacids and not albumin." Union of fifteen molecules of glycocholl with three of levoleucina yields an amorphous body giving all the reactions of peptone, and Abderhalden has succeeded in maintaining nitrogen equilibrium with a diet consisting solely of aminoacids, sugars, fatty acids, and glycerin. The building up of specific albumins requires that the absorption of aminoacids shall have taken place in the alimentary tract; if injected into the blood, these acids are eliminated in the urine. Lematte describes a new, simplified procedure for the estimation of urinary aminoacids: In a stoppered 100 c.c. graduate place 30 c.c. of urine and 50 c.c. of a 30 per cent. solution of c.p. phosphotungstic acid; shake, allow to stand ten minutes, add 4 gm. of pure magnesium chloride and distilled water to 100 c.c. Shake, and allow to stand until the supernatant fluid is clear—about two hours. Decant the clear fluid on a filter, add 10 drops of a saturated alcoholic solution of phenolphthalein and then 50 c.c. of normal sodium hydrate solution. The precipitate is now filtered off and the colored filtrate titrated against a standard half-saturated formaldehyde solution, colored with phenolphthalein and alkali. The amount of decinormal sodium hydrate added to reproduce the standard tint affords an exact measure of the urinary aminoacid nitrogen.

Paracodeine.—Dahl, *Deutsche Medizinische Wochenschrift*, July 3, 1913, says that paracodeine fills a gap between the codeine and morphine groups. As a result of experience he asserts that when it is given, like codeine, in small doses, it often acts with more intensity than codeine; compared with which the new remedy has greater sedative power; while for certain uses it will advantageously replace morphine. No unpleasant after effects, more than with codeine preparations, have been observed. Paracodeine is hydrated codeine, soluble in water. The dose is generally from $\frac{1}{3}$ to $\frac{1}{2}$ grain.

Injectations of a suspension of Bulgarian bacillus is stated to be very effective in gonorrhea.

MISCELLANY

THE INHUMANITY OF MAN

Since the advent of man on this mundane sphere there have been differing viewpoints regarding his attitude toward his fellows, whether from jealousy, envy, rivalry or selfishness. What we earn we own by right, and safeguard by such means as will ensure possession. To that end we are compelled to build strong vaults or other protection as will ensure against our neighbor or the strong, ruthless or envious. In medieval times it was the castle, with its numerous appurtenances, with retainers, armed and equipped to ward off enemies. In modern times we must build navies of the most approved type, keep mighty armies in constant readiness to repel the invader; science must furnish us with the most violent explosives, huge siege guns, submarine and torpedo boats, torpedo boat destroyers, airships to drop explosive bombs into our cities or onto our warships; armored forts to guard our frontiers from attack—all to the end that we may retain our own, for defense as well as offense. We must police our homes as well as our countries, States, cities, towns, villages and even rural districts; must have courts to adjudicate between our individual and property interests and the invader; penitentiaries and like institutions to restrain the wrongdoer.

Nations as well as communities and individuals, good and bad, must perforce be policed against themselves as well as their neighbors and the alien. Unfortunately, perhaps, the world is made up of individuals, and this prevails throughout all life, animate and inanimate; man and the inferior animals; through organic and inorganic life. No two individuals are physically or mentally, ethically or contrariwise alike, and while there should be no occult knowledge necessary to determine between right and wrong, the borderline is often obscure; might, in the minds of many, makes right. From the days when the savage, who chose his mate by the weight and strength of his right arm, to the present, man concludes that what he wants should by right of conquest belong to him. Some believe that this attitude of mind is the source of progress; that it is a divine right of the strong to rule. History would seem in many instances to corroborate this view regarding nations and individuals, and yet what of the right of possession, of that of our own making, tangible or intangible, property or conscience? The edict goes forth to-day, as in the dawn of history, "Am I my brother's keeper?" Is altruism a dream? For here we stand to-day as truly as in any time in history. "Peace on earth, good will toward men," is the lesson man has never chosen to learn. Is Malthusianism to become an accepted fact; the millennium postponed for another thousand years? The theory of the survival of the fittest, to the end that the world may become wiser, and therefore more fit, is a delu-

sion, in so far as it can bring surcease of sorrow. Woe is man, the widow and the fatherless; and yet, surprising as it may seem, the earth continues to revolve, the sun and stars to shine, flowers to bloom and birds to sing. But we have become serious and sad; our dreams are no longer pleasant ones, crimson is the prevailing color at night, darkness and unbelief obscure our vision by day. We are becoming fretful and we fear morose; would deny the newspapers, but cannot. And thus the days come and go, while we continue to hope.

RESTRAINT NEEDED IN EUGENIC LEGISLATION

In the course of a recent lecture tour through Australia, Professor William Bateson, president of the British Association for the Advancement of Science, is reported to have made a number of very interesting addresses, many of them dealing with the subject of heredity in man, and touching particularly upon the problem of eugenics.—*Medical Recorder*. "The remedies proposed in America, so far as they aim at the eugenic regulation of marriage on a comprehensive scale," he said, struck him as "devised without regard to the needs either of individuals or a modern state."

On this point he made these further remarks:

"Undoubtedly if they decide to breed their population of one uniform puritan gray, they can do it in a few generations; but I doubt if timid respectability will make a nation happy, and I am sure that qualities of a different sort are needed if it is to compete with more vigorous and more varied communities.

"Every one must have a preliminary sympathy with the aims of eugenists, both abroad and at home. Their efforts at the least are doing something to discover and spread truth as to the physiological structure of society. The spirit of such organizations, however, almost of necessity, suffers from a bias toward the accepted and the ordinary, and if they had the power it would go hard with many ingredients of society that could be ill spared.

"It is not the eugenists who will give us what Plato has called divine releases from the common ways. If some fancier with the catholicity of Shakspeare would take us in hand, well and good; but I would not trust even Shakspeare's meeting as a committee. Let us remember that Beethoven's father was an habitual drunkard and that his mother died of consumption.

"The definitely feeble minded we may with propriety restrain, as we are beginning to do even in England, and we may safely prevent unions in which both parties are defective, for the evidence shows that, as a rule, such marriages, though often prolific, commonly produce no normal children at all. The union of such social vermin we should no more permit than we would allow parasites to breed on our bodies. Further than that in restraint of marriage we ought not to go, at least not yet.

"Something, too, may be done by a reform of medical ethics. Medical students are taught that it is their duty to prolong life at whatever cost in suffering. They may have been right when diag-

nosis was uncertain and interference usually of small effect, but deliberately to interfere now for the preservation of an infant so gravely diseased that it can never be happy or come to any good is very like wanton cruelty.

"In private few men defend such interference. Most who have seen these cases lingering on agree that the system is deplorable, but ask where can any line be drawn. The biologist would reply that in all ages such decisions have been made by civilized communities with fair success both in regard to crime and in the closely analogous case of lunacy. So soon as scientific knowledge becomes common property, views more reasonable, and, I may add, more humane, are likely to prevail."

SERVICE OF MEDICINE TO CIVILIZATION

In his presidential address, June 23d, before the A. M. A. at its sixtyfifth session at Atlantic City, Dr. V. C. Vaughan, of Ann Arbor, took up the subject of the service of medicine to civilization. In ancient times, he says, civilization arose, grew for a few centuries and then declined. In all instances it was local. Relatively small bodies of men occupying salubrious regions developed the elements of science, and for a few centuries flourished. They overcame their less fortunate neighbors; with conquest came infection and national decay. He reviews the histories of the Egyptians, the Greek and the Roman civilization, all of which succumbed to malaria and pestilence introduced by captives. The plagues of the Middle Ages, which kept Europe thinly populated for centuries, are also reviewed. The claim that infectious diseases have benefited the race by destruction of the unfit is shown to be unfounded in fact. Dr. Vaughan has himself combated it from his own experience in the Spanish war, and he brings forward many proofs from ancient and modern history to support his views. A study of epidemics shows that in the presence of widespread contagion mankind tends to revert to barbarism. Disease breeds immorality, ignorance and strife; and Vaughan holds that it is not extravagant to prophesy that with ten centuries of freedom from disease, inherited or acquired, the world would be regenerated and the superman be born. We need not turn to history for examples of the degenerating effects of disease. We see it today in the physical inferiority, intellectual weakness and moral irresponsibility of those people who are still under the shadow of malaria and kindred ailments. We have not yet got out of the shadows of the dark ages. Medicine consists in the application of scientific discovery to the prevention and cure of disease. Everything else is sham and fraud. The civilization of which we boast is still only partial, though science dominates the world more now than ever. No nation where conditions exist as they do at present can be given a clean bill of health, and there is much yet to be done before we approach this mark. All intelligent people must cooperate in hygienic measures. To permit disease or to transmit disease to offspring is unpardonable, and to infect another one with disease is immoral. Vaughan goes at length into

pointing out the ways in which medicine is a public service, though its work is done at a sacrifice by those who render the service. He notices the laws that are being enacted and that are proposed for the advancement of public health and the benefit of the race, and gives his own ideas as embodied in the Michigan legislation. If preventive medicine is to do its best service, the time must come when every citizen will submit to a thorough medical examination once a year or oftener. The public health service is doing good work, but in each State there should be a hygienic laboratory, and a board to use it for the study of sanitary conditions and the prosecution of scientific research. He closes with an appeal to the younger members of the profession, who have the work before them and on whom the future of the race depends.

ADVANTAGES IN BOTTLING PASTEURIZED MILK WHILE STILL HOT

Investigators in the U. S. Department of Agriculture have found that the process of bottling pasteurized milk while still hot has several advantages, which make it seem probable that this method would prove both economical and efficacious when practiced on a commercial scale. In an article printed by permission of the Secretary of Agriculture in the *Journal of Infectious Diseases*, the authors declare that this method results in bacterial reductions as great as, or even greater than, by pasteurization in bottles.

The principal advantage of the latter method for the ordinary systems in commercial use is the impossibility of the milk becoming contaminated again while being bottled. There is also some saving of milk, because there is no loss from evaporation. On the other hand, when milk is pasteurized in bottles, it is customary to cool the bottles by placing them in cold water. This necessitates the use of absolutely watertight caps, otherwise some of the cold water is likely to find its way into the milk bottles, and even a very slight leak may result in contamination. Waterproof caps are not only expensive, but care is essential to see that they actually are waterproof; and, moreover, bottles with chipped or otherwise damaged tops cannot be used, no matter how nearly perfect the cap may be.

Laboratory experiments conducted by the investigators indicate that milk may be pasteurized, bottled hot, capped with ordinary cardboard caps, and cooled by a blast of cold air economically and with very satisfactory bacterial reductions. The air cooling process requires a somewhat longer time than cooling by water, but in the laboratory it was found that thoroughly pasteurized milk, bottled immediately, could be cooled slowly without increasing the bacterial content. Whether or not the experience of the laboratory will be found true in commercial practice remains to be seen. The Department of Agriculture, it is announced, will conduct experiments with a view to determining this important point.

Before the milk is poured into them, the bottles should be steamed for two minutes, the authors are careful to point out. This removes all danger of infecting the milk from the bottles, and is another advantage that this new method possesses.

A PLEASURABLE VACATION

We wish every one could experience the benefit and the great pleasure which was only recently ours—a visit to Old Point Comfort, Fortress Monroe, Virginia. Not having had a vacation for several years, and in consequence having become tired, listless with lowered resistance, complaining of fugitive pains in various parts of our body, impaired appetite, inability to sleep through the night, and in fact having taken on a condition of "played out," we were advised by friends to get away from the office, from work for a period. Objections were swept aside by medical friends, and we took steamer to Old Point as the one place conveniently near where we could find everything needed to bring us back to condition. The weather was fine and the sail most enjoyable. We registered at the Hotel Chamberlin and soon presented ourselves to the house physician, who, after taking our history, advised taking "The Cure." As our stay must be limited, the treatment began at once. It would take too much space to detail the various methods of effecting a cure, what it consists of. Suffice it to state that what with the baths, accompanied with other measures, visiting the very many points of interest nearby, drives, walks, the admirable cuisine and splendid service, we were able to return to work in two weeks in fine condition.

The management have all forms of treatments, given at home or at the favorite resorts abroad, including hydrotherapeutic, electric, light; the Nauheim, Vichy and Aix Baths, D'Arsonval and High Frequency; Cataphoresis and Ionic; Finsen Calors, etc. It would seem, from a personal inspection of the various methods and systems, unnecessary for one to go abroad for restoration to health when such excellent treatment, fitted to almost every condition for which patients are sent to Europe, can be had at home.

In addition to the baths of all kinds, with other measures found at the Chamberlin, there is the social life, which adds so much to one's content of mind. Hampton Roads, the noble harbor wherein are constantly stationed all character of naval vessels, from the huge battleships to the torpedo boats, including the cruisers, destroyers, submarine, etc. Officers from the navy and the army located in Fort Monroe are constant visitors to the evening functions at the Chamberlin, with their wives and sweethearts, making these functions particularly brilliant.

Then there are many interesting historic places nearby which can be taken in within a few hours, by boat, trolley or steam cars. Hampton, Newport News, Norfolk; the trip up the James River, across the Bay to Charles City, etc., walks through the Fort, concerts by the Fort Band, and something different almost daily.

Dr. Hawley, resident physician, is a most competent and conscientious man, while mine host, Mr. Geo. F. Adams, is indefatigable in his efforts to please and help the guests.

Altogether, after a personal inspection and treatment, we believe we are warranted in stating that the service, medical and otherwise, to be had at the Chamberlin Hotel is equal, if not superior, to that found in other places.

FLOWERS AS NATIONAL EMBLEMS

In many countries a flower has been recognized as the national emblem; though, as a rule, heraldry, where it is in vogue, does not accept any floral emblem writes Tegnier. France is the only European nation in whose national arms a flower has appeared. But her conventional fleur de lis is so different, compared with the actual flower, that it is difficult to say what it really does represent. It is generally taken, however, as meaning three lilies, or fleur de luce, and together with them, the medieval French flag bore upon its field of crimson an oriflamme, or golden sun, signifying no quarter.

The narcissus, from the earliest historical times, has been the floral emblem of Greece; though the oldest, dating from the early centuries of the Christian era, is that of Ireland—the shamrock—originally adopted by Saint Patrick in the year 432 as a simile of the Holy Trinity, and from that time onward the national emblem of the green island of Eire. The Welsh emblem, that of a leek, dates from the day of great victory obtained by the gallant Welshman over the Saxon invaders, in 518, when the exulting victors placed a leek in their caps.

Scotland's thistle is of older origin than England's rose, and was taken as the national emblem, consequent upon the dramatic defeat of the Danes in the reign of Malcolm First, A.D., 1000. The enemy, who had come down on the coast of Aberdeenshire, was planning to surround and storm the great castle of Stalness. When midnight approached, they were crawling up, barefooted, so that no sound might betray the attack. The vanguard, on dropping down into the moat, found themselves not in water, as they expected, but in the midst of prickly thistles which pierced their unshod feet, and caused them to yell. The sounds aroused the sentinels, and, the garrison assailing them, the Danes had to beat a disastrous retreat.

England's national flower, previous to the thirteenth century, was generally regarded as the yellow broom. Not until 1455, at the time of the War of the Roses, was the rose chosen—red for the Lancastrians, and white for the Yorkists—the union of the roses being effected by subsequent marriage between the two rival houses.

The United States is generally credited with the golden-rod, the deep yellow spikes of which grow in every hedgerow and thicket from coast to coast. Canada has chosen the maple leaf, of which the lovely scarlet makes leagues of her forests all ablaze in autumn. Australia wears the waratah, and New Zealand the flannel flower, while the United States of South Africa have donned the lotus. But, even as far back as 9000 B.C., the lotus is to be traced from the hieroglyphics as the emblem of Egypt's national being.

Genitourinary Clinics will be held every Thursday evening, at 8.30 o'clock by Dr. Abr. L. Wolbarst at the West Side German Dispensary and Hospital (New York School of Clinical Medicine), 328 West Fortysecond Street, from October to April, inclusive. Physicians and medical students are cordially invited to attend.

BOOK REVIEWS

Local and Regional Anesthesia, including Analgesia. By CARROLL W. ALLEN, M.D., of Tulane University, New Orleans, with an introduction by Rudolph Matas, M.D., of Tulane University, New Orleans. Octavo, of 625 pages, with 255 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

This is a most ambitious work, well conceived and thoroughly executed. One is amazed that in so short a period, fourteen years, so ponderous a work, consisting of over six hundred pages, could be written from clinical data, operative experience, to encompass in its pages almost the entire domain of operative surgery, with the aid of local and regional anesthesia; when such heroic procedures as resecting the jaws, excising the tongue, performing craniotomy, resection of joints, thoractomies, hernias and the entire domain of genitourinary, rectal, pelvic, abdominal and other forms of major surgery.

This admirable work begins with a chapter on the history of anesthesia, taking us back to the Odyssey, when Helen of Troy gave to Ulysses the "sorrow easing drug." It is also referred to by Homer in the Iliad, when Petroclus gave to Euryphylus a decoction of probably the juice of poppy and Indian hemp before removing the dagger from his thigh, and brings us down to cocaine described by Koller in 1884. This historical essay is but a prelude to what follows. Every point is discussed, all phases of local anesthesia dwelt upon; full descriptions of the various synthetic substitutes for cocaine; the technic for use and a chapter on toxicology. Shock and Crile's Anoci-Association methods are discussed at length. Interarterial and intravenous, spinal analgesia and epidural injections. Regional analgesia through the use of local anesthetics, preceding operations on the extremities, the neck, thorax and back, abdomen; in hernia, genitourinary, anorectal and gynecological operations, in obstetrics, the head, cranium, brain, face, eye, ear, nose and throat; in dentistry, and the methods of various operators, are all fully set forth.

In discussing morphine and scopolamin injections, the author declares that the idea of using these two drugs for anesthesia alone or in combination with cactin or other agents is fraught with the greatest risk possible, and that it had its origin in the suggestion in 1900 by Schneiderlin that they be used in large doses as a means of producing surgical anesthesia, the idea being an erroneous conception that the two drugs exerted a certain cardiac and respiratory antagonism, while being synergistic in their analgesic and hypnotic qualities; this, however, was soon shown to be an error, as Wood in 1905 was able to collect 2,000 cases with 9 deaths, or 1 to 221, a frightful mortality, while in 69 per cent. of the cases a general anesthetic was necessary to complete the operation.

The work is freely illustrated, handsomely printed and bound. We think it should and will become popular with the general practitioner and the dentist as well as with the specialist.

Eugenics: Twelve University Lectures. By numerous authors with a Foreword, by LEWLLYS F. BARKER. New York, Dodd, Mead and Company, 1914.

The lectures contained in this volume, twelve in all, were selected from a number given in various colleges throughout this country during 1912 and 1913. The object sought in issuing them is the awakening of a eugenical conscience, this paving the way to arousing public opinion and a wise legislation along lines as discussed by the various essayists.

Among those which will mostly appeal to medical men will be found that by Victor C. Vaughan, M.D., University of Michigan, on Eugenics from

the point of view of the Physician. Eugenics as viewed by the Physiologist, by W. H. Howell, Ph.D., M.D., Johns Hopkins University, and Eugenics, with Special Reference to Intellect and Character, by Edward L. Thorndike, Ph.D., of Columbia University, New York. All of the essays bear directly on the much discussed subject of Eugenics, and all of them are by men eminently qualified to write upon the phases of the question which they severally present.

Charles B. Davenport, Ph.D., of the Carnegie Institution, Director of the Department of Experimental Evolution, who has done much to further the interest in eugenics, heads the list with a lecture, the Eugenics Program and Progress in Its Achievement.

It is difficult to discuss a work of this character; discussions from so many different points of view in the limits of a review, but it is encouraging that men so well qualified to enlighten us upon this subject should consent to do so. Here is authoritative information, broad and scientific, available, rather than the pseudoscientific nonsense of the notoriety seeker or dilettante investigator which we have had forced upon us recently in the lay press, as well as medical and otherwise scientific sources. It may be possible to in time bring about an uplift to humanity through eugenic teaching; if so, we think it will not be by legislation, but by education. In the process of a propaganda of this kind much harm is done by continual reference to individual and isolated cases held up as a warning to humanity in general. Criminals do not always come from degenerate families, but often from normal ones. While contrariwise, all of the children of the first wife of Jonathan Edwards, whom he had to divorce, were good and accomplished, while all of the children of the second wife, of unblemished character, were mediocre. Mozart was of bad ancestry, as well as many others classed as brilliant. Who is to determine the fitness for parentage excepting in pronounced and typical criminals? What about the morons? We do not believe that even with an accurate family history running back for several generations a safe and accurate future could be determined for those to be born. Eugenics as at present preached predetermines the absence of sentiment in the choice of a mate, and yet sentiment has added much to the advancement of humanity, to the uplift of man.

This is a sane work and should be generally read.

The Infant: Nutrition and Management. By ERIC PRITCHARD, M.A., M.D. (Oxon); M.R.C.P. (Lond.), Physician to the Queen's Hospital for Children, Honorary Physician to Out-Patients, City of London Hospital for Diseases of the Chest, Victoria Park, etc. London: Longmans, Green & Co. New York and London, 1914. Price \$1.00.

This volume of some 265 pages is founded on a series of lectures which have been given at the Queen's Hospital for Children, the Medical Graduates' College and Polyclinic, the National Association for the Prevention of Infant Mortality and other societies by the author. Some of the lectures have been published in medical journals. There are twelve in all, dealing with lactation and the management of breast feeding, certain physiological principles concerned in the nutrition and the determination of the quantitative food requirements of infants, motor functions of the digestive system, training of nerve centres, constipation in infants, the use of petroleum in the treatment of constipation and other diseases in infants, convulsions, rickets and the teaching of mothercraft and its influence on infant mortality.

Taken as a whole, the work is a creditable one to the author. It should be widely read.

A Manual of Biological Therapeutics: Sera, Bacterins, Phylactogens, Tuberculins, Glandular Extracts, Toxins, Cultures, Antigens, etc. Press of Parke, Davis & Company, Detroit, 1914.

This will be found a very interesting and valuable book both for study and reference.

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ORIGINAL ARTICLES

THE TREATMENT OF CANCER WITH RADIUM*

BY DR. JOSEPH B. BISSELL

New York

The therapeutic utility of radium is too comprehensive to be more than touched upon in the few minutes which you have so kindly accorded to me this evening.

The place which radium occupies in surgery is now becoming fairly well defined. Foreign medical literature teems with valuable papers expressing in many languages the important and extensive uses of this metal. Besides the private individual worker, large institutions, like the London Radium Institute, the Vienna General Hospital, with its radium station and its large quantities of available radium, the Paris Radium Institute, as well as many other institutions having radium, have published much information devoted in great part to its surgical uses. Certain Governments and municipalities in Europe have so interested themselves in this function of radium as to appropriate money for its purchase. The Government of Austria, for instance, at a medical meeting at Halle, in the fall of 1912, bought over a gram of radium and added it to the amount already belonging to the General Hospital at Vienna. By this action of the Government, it was made possible to lend radium applicators to physicians for radiation treatment. Complete physical data, as regards each applicator, are carefully recorded, according to the measurements of Professor St. Meyer, at the Vienna Institute for Radium Research. In this manner it is possible to control exactly the doses applied, and to obtain practical knowledge of benefit derived from them. In London and in Manchester two daily newspapers found it worth their while to give a

*Read before the Society of the Alumni of St. Vincent's Hospital, October 14, 1914.

large sum of money for the purchase of radium, in order that it might be used in the clinics of these cities.

Except in a private way, not much has been done, comparatively speaking, with the therapeutics of radium in this country. In Boston the Harvard Cancer Commission has a fairly large amount and has employed it, as has also the Crocker Cancer Research Commission at Columbia University in this city; but, mostly, radium has been exploited by private capital. Two well known surgeons, one in New York and one in Baltimore, have obtained very valuable results from the large amount of radium at their command. Several less well known owners of very much smaller amounts than the two individuals just mentioned have made use of it, some of these, unfortunately, to their discredit and to the disadvantage of both science and therapeutics.

That radium has a therapeutic value and a great one there can be no doubt. More than a thousand treatises on radium emanation treatment alone have been published. In the treatment of internal disease, for instance, when such leading authorities in the medical world as von Noordan, von Neusser, Krauss, Paul Lazarus, Winternitz, Hoffman, Schmidt, Falta, Reicher, Eicholz, Armstrong, Bergell, Aitkins, Wickham, Newcomet, Dominich, and a multitude of others, make statements in writing based on the results of their clinical work on hundreds of patients, such statements must be regarded as based on scientific and irrefutable facts, unless contradicted by uncontroverted authority. The treatment of arthritis and rheumatism of the joints and muscles alone by means of radium emanations and other ways of giving the remedy has been described frequently by many well known English clinicians. Many observers have investigated and reported hundreds of cases of neuralgia, sciatica and gout, not to speak of arteriosclerosis, constipation, diabetes, nephritis and various blood diseases, including *tabes Dorsalis*, treated by means of radium in various ways. Chemists, biologists, physicists, and physiologists have recorded in many ways the relationship of radium to the human body, as shown in their various special experiments. Human tissue which has been radiated acts differently to the Roentgen rays and to the rays of the radio active substances. Cells may be affected by means of these rays from a slight injury to a severe one. The damage may be so slight that recovery from it is very rapid and complete, or it may be so profound as to completely destroy the cells. The cells of malignant tumor are much more susceptible than the normal tissues. The sensitiveness of cells differ in the different tissues, for instance, the mucous membrane is much more quickly affected

by the action of the rays than the skin, and the cells of the ovarian tissues and the thyroid than the cells of the heart or the lungs. The further the cells from the radioactive substance the less the effect upon them; the local action of the rays upon the skin is distinct from its internal effect. Ten cubic centimeters is probably the limit of the depth to which these rays may reach. Three and a half cubic centimeters is said to be the maximum for effect in the destruction or selective action of the radium. This selective action upon malignancy is assumed from the experiments reported by Aschoff, Hansemann and other anatomists and pathologists.

That the great usefulness of radium has not been so well appreciated in this country as abroad is due partially, at least, to two reasons, the expense of the remedy and our inexperience in handling it. As far as its use in internal disease is concerned, the fear of expense is more imaginary than real. Emanations can be used to a large extent and in a very satisfactory manner, and, at the same time, are cheaper than many of the various high priced drugs now in daily use. Even the local use of radium for its various surgical applications is often available without a prohibitory expense. Of course, if one wishes to make an attempt to destroy large, rapidly growing and deep seated malignant diseased conditions, massive doses of this agent must be used. By massive doses is meant either large doses and long hours, or both; and a large dose may mean anywhere from 50 milligrams of the radium to hundreds of milligrams, and from 10 hours to 100 or more. The longest time of continuous application is of 40 milligrams for 31 days, reported by Professor Schmidt of Vienna. This case was a carcinoma of the cheek, postoperative recurrence, and was finally cured with the trifling inconvenience of moderate dermatitis.

Inexperience is a factor in the unsuccessful treatment of disease by this medium which patience, hard work and long practice may avoid. With more radium in sufficient quantities at our disposal, and a larger number of patients, we will be better able to ascertain more accurately the uses of this valuable resource, and also avoid its abuses.

Naturally, I have viewed radium from its surgical point in the reports of the following patients under treatment, some of which you have seen at the hospital and know of from your own knowledge.

Apologizing for the rather desultory way of relating these cases, I offer them to you just as they are, good, bad, and indifferent. Of the 75 or 80 cases which have already been treated by me with radium I have selected a few which may appear interesting, be-

cause of absolute failure, or from the accidents which have happened to them in the course of treatment, as well as those which have terminated in a cure:

J. W.; aged 68; St. Vincent's Hospital; occupation, seaman. Two weeks previous to his admission to the hospital he had a small growth on the left upper eyelid cauterized, but not destroyed. It had been present for about six weeks, was the size of a pea. Date of admission March 9, 1914. A section of the tumor was removed, and the report of the pathologist showed that it was an epithelioma. On March 16th 40 milligrams of radium, well screened, was applied to the growth for one half hour. Three days later the same dose was repeated. There was no reaction either to the tumor or to the surrounding skin, except that the growth seemed to be somewhat whiter and harder. As the patient was in a hurry to get back to his ship, I removed the growth by local anesthesia on the 24th of March. Four days later it was dressed, the catgut stitches having given way, and the wound found to be gaping. The edges of the wound were brought together and 10 milligrams of radium, well screened, applied. Four days later the wound appeared to be united by first intention. At this time 10 milligrams were applied for half an hour, and the man was discharged to his boat apparently cured. A report a few days ago from the captain of his ship said that he was apparently cured.

A. W.; cornetist; 32 years old; has a small growth irregular in shape, about three eighths of an inch long and a quarter of an inch wide, slightly elevated on the mucous membrane of the upper lip at its middle point. 10 milligrams of radium were applied three times for 20 minutes each time, with an interval of a week between each application. The tumor has entirely disappeared. This patient is a musician, and was sent to me for treatment because he was unable to pursue his avocation. It would have been easy to remove this tumor by excision, but such an operation would have destroyed the fine muscular actions in the lip, upon which the patient depended for his livelihood as a musician. Radium treatment was, therefore, decided upon to restore the lip to its normal condition without interfering with its delicate and necessary functions. The result is completely satisfactory. The patient is now playing a wind instrument in his orchestra.

J. S.; farmer; 62 years old; presented himself June 20, 1914, with a large ulceration of the right side of the back of the tongue extending across its base; deeply excavated, discharging pus and blood. The tongue was swollen along its right border so that he spoke with difficulty and pain. Deglutition was painful and difficult. It was almost impossible for him to chew his food. Saliva was constantly dribbling from the side of his mouth. The submaxillary and lymphatic glands of that side were swollen and tender, and the skin over the location was reddened and painful to the touch. For the past six months, when he had first noticed the lump on his tongue, he had lost about 25 lbs. in weight. Altogether, his was a typical case of cancer of the base of the tongue, extending across the middle line. He had been to several doctors in his home town, who had pronounced the case carcinoma and most of whom advised excision. 100 milligrams of radium were applied to the ulcerated surface and to the glands beneath the jaw, by means of mechanical devices, alleviating the irritation of the ulcerated surface by

means of novocain solution. The radium was applied for 24 hours. He was told to return in six weeks for another dose. At the end of that time this patient returned to my office a totally different man. The ulceration was entirely healed, the glands of the neck had disappeared, pain and difficulty in swallowing had gone; patient was able to eat; he had gained in weight 15 lbs., and seemed to be restored in every way to his normal health excepting that he had a small radium burn on the tip of his tongue.

John S.; aged 61; farmer; March 21, 1914, presented himself with extensive and deep ulceration below the right ear, extending down the neck. This began a year ago. A part of the lobe of the ear is destroyed; the large vessels of the neck are exposed an inch in extent. The ulcerated surface is about three inches by two and a half inches, irregular in shape. Pathological examination showed basal celled epithelioma. It had been thoroughly curetted and cauterized without much improvement. April 10, 1914, 40 milligrams of radium were applied for nine and a half hours to the ulcerated surfaces and edges. April 16th patient showed a marked improvement in the length and depth of the ulcer. New skin was coming in from every side except at the inferior and exterior angle. Again 40 milligrams of radium were applied for 9 hours. At the end of a week he returned with the ulcer healed up to within an inch of its extent, leaving a small ulcerated surface at the exterior and inferior angle. 40 milligrams of radium again applied for 12 hours, and the patient left next day for his home in the country.

P. Schneider; aged 57. Early in April, 1914, he was operated upon for a large carcinoma of the cecum, reaction. Immediate result was satisfactory, but recurrence was very rapid, new growth appearing in the old situation about the latter part of May, 1914. July 30, 1914, 100 milligrams of radium applied for fourteen hours to the surface of the abdominal tumor in the right hypochondriac region. August 5th tumor increasing very rapidly, broken down, and discharging through the opening in the center. No irritation or inflammation of the skin. 51 milligrams of radium applied in one tube in the opening at the center of the tumor in the abdominal wall. 50 milligrams in divided doses applied to the surface of abdomen screened by two millimeters of lead. August 13th wound discharging profusely; another opening has appeared, 6 inches from the first and lower down. Radium applied as above for 14 hours. August 24th size of the tumor, if anything, has diminished. No irritation or inflammation of the skin. Discharge is not so profound or so foul smelling, but patient's general condition is very much worse. He is very weak and has profuse diarrhea, which has lasted now for two weeks and is becoming steadily worse.

M. N.; 28 years old; waitress. Began with pain and swelling in the outer surface of the middle of the right side; first noticed early in December, 1913. February 7, 1914, the tumor was fusiform in shape, extending over a good deal of the middle third of the thigh, irregularly, five inches by three inches, deeply attached to the bone; skin movable over the tumor except at the edges of a large discharging sinus, at its lower limit. This is the point of an incision made to evacuate an old abscess six weeks previously. A counter opening over a fluctuating point on the internal and upper surface of the tumor was made about eight inches from the other opening, the soft tissue and bone surface curetted out thoroughly. Microscopic

examination showed this tissue to be sarcomatous, of the spindle celled variety. By means of a drainage tube radium was applied throughout the sinus. Four applications of radium were made in this manner between March 9th and April 26th, using from 40 to 101 milligrams at each application. The patient's temperature ran from 102 to 104 most of the time after her admission to the hospital, showing a very well marked mixed infection, from which she eventually died June 2, 1914. After beginning the use of the radium she was relieved, for the most part, of pain and to a great extent of the discharge, while the swelling made no further increase. Before using the radium a well marked arthritis of the knee had commenced and continued up to the time of her death.

By contrast with the outcome above, the following case is related:

C. V.; 27 years old; cable worker. In January, 1912, he fell into a man-hole a distance of three or four feet, striking on his left hip. About a month later he noticed that the swelling, which resulted from this fall, had begun to grow larger and became slightly tender. This swelling and tenderness increased, and in December, 1913, when he first presented himself to me, he had a tumor extending from about an inch below the crest of the ilium along the outside of the thigh nearly to the knee. It was about 12 inches across the middle, skin was movable over it, but the mass itself was deeply attached, slightly tender, with occasional deep seated pain. On January 5, 1914, and for several days following, patient received injections of Coley's serum. The growth shortly afterward broke down, discharging profusely, and the pain became almost unbearable. The tumor soon increased again and a fluctuating point was opened three weeks later about ten inches higher than the other opening. Fragments of the broken down tissue, on examination by the microscope, proved to contain the spindle cells of sarcoma. The origin of the tumor seemed to have been from the ilium. March 9th 40 milligrams of radium were inserted in the sinus by means of a drainage tube and allowed to remain for four hours. March 16th a similar amount was inserted in the wound for 12 hours. Marked improvement followed the result of these two applications. The discharge decreased rapidly, the tumor became very much smaller, and at the end of a month from the second application there remained a very small hard tumor connected with the outer surface of the ilium, and a long, narrow sinus through which a drainage tube could be inserted with considerable difficulty. At this time 100 milligrams of radium were applied in the sinus and over the outside of the tumor, remaining there for 24 hours. At the end of two weeks the sinus was completely healed, the tumor was reduced to a small, hard, bony exostosis, about two inches broad, just below the crest of the ilium. There was no pain and the man was able to be up out of his bed, walking about with a slight limp. He continued to improve, and was discharged cured on the 1st of June. October 1st he presented himself to me in an entirely satisfactory condition, except that the bony nodule had increased slightly. He was still at work and, excepting for the increase in the size of the tumor, had no complaints to make. 100 milligrams of radium were applied for 18 hours over this bony mass, and he has since been at work, the tumor being considerably reduced in size.

The contrast between these two cases, both being of the same

variety of malignant growth, practically the same location, nearly of the same age, and with absolutely opposite results, is striking and somewhat disconcerting.

Mrs. R.; 52 years old; has been suffering for the last year and a half from carcinoma of the stomach, complicated by nephritis, cirrhosis and goiter. When first seen, May 20, 1914, she had constant epigastric pain, increased by taking any food whatsoever, vomiting after nourishment by mouth, and occasional hematemesis. There was a large, irregular and tender tumor in the epigastrium and right hypochondrium. This case was, of course, inoperable, and an endeavor was made to make her comfortable only. She had two intravenous injections of 100 micrograms each of radium. These two injections were given two weeks apart, the first on May 22d. The relief from pain was immediate and marked. Vomiting ceased, she was able to take food without pain or bleeding, and her general condition improved rapidly. She was comparatively well and comfortable for about six weeks after the second injection, but died of her chronic nephritis about the first of July.

It is difficult to draw satisfactory conclusions from the few cases that I have so far personally treated, and, of course, more time must elapse before these patients can be said to be cured. Some few inferences, however, can be made from the study of these, together with others which I have omitted from want of space and time to bring before you, and the large number of cases reported by other authors. Faulty technique is a frequent cause of non-success, as it is of the accidents which occur during the use of local applications. Aside from this cause, failures may be attributed to inadequate amount of the remedy, insufficient time of application, and error in the quantity and quality of the radium employed.

Less than thirty per cent. of all kinds of cancer are cured by operation. In some varieties the proportion is less than 9 per cent. In certain parts of the body where incision would destroy a function, or for cosmetic reasons, or where the growth is inaccessible to complete removal, operation is contraindicated. Little encouragement is to be expected from our present knowledge and experience in most of the forms of deep seated and extensive carcinoma. Radium, where it is applicable, is, without question, a most efficient aid both before and after operation. Because of the small percentage of cures by surgery, alone, radium offers to the vast majority of sufferers from cancer the only possible escape from almost certain and usually rapid and hideous termination of life.

In the war against cancer, radium is an invaluable agent when employed by a surgeon having a thorough knowledge of its therapeutic capabilities.

MAJOR SURGERY UNDER COMBINED LOCAL AND
GENERAL ANESTHESIA*

BY LOUIS FRANK, F.A.C.S.

Louisville, Kentucky

The *raison d'être* of the present extensive discussion of anesthetics is not difficult of understanding. Those who have carefully perused the numerous contributions to the literature during the last few years have doubtless observed the argumentative attitude assumed by the various authors concerning the agents and methods in vogue for the induction of anesthesia for the performance of major surgical operations. For many years chloroform was the anesthetic of choice in the West and South, whereas ether was accorded preference among Northern and Eastern surgeons; but neither agent proved invariably satisfactory to both operator and patient, the reasons for which will be later more fully outlined.

It is one of the most important surgical axioms that he who is permitted to perform operations upon the human being fails in the performance of his whole duty, unless he shall adopt every known safeguard which offers increased safety to the patient. The responsibility of the surgeon and his duty to the patient demand the adoption of methods which entail the least danger to life, otherwise he should not be permitted to perform surgical operations.

The idea of artificially inducing anesthesia to permit the painless treatment of wounds and the performance of surgical operations is not of recent origin; there is abundant evidence to show that it is a practice of great antiquity. Besides the mention by Homer (about 850 B. C.) of the anesthetic effects of nepenthe, and the reference by Herodotus (about 450 B. C.) to the practice of the Scythians of inhaling the vapors of a certain kind of hemp to produce intoxication, the employment of anesthetics in surgery by the use of mandragora is particularly alluded to by Dioscorides and Pliny. It also appears that a physician (Iloa-Tho), who lived in the third century A. D., gave his patients a preparation of hemp, whereby they were rendered insensible during the performance of surgical operations. Mandragora was extensively used as an anesthetic by Hugo de Lucca, who practiced in the thirteenth century. The soporific effects of mandrake are alluded to by Shakespeare, who also makes frequent mention of anesthetizing draughts, the composition of which is not specified. Sylvester (quoting from a Ger-

*In an abbreviated form this paper was read by title before the American Association of Obstetricians and Gynecologists, Buffalo, N. Y., September, 1914.

man work by Meissner, published in 1782) mentions the case of Augustus, king of Poland, who underwent amputation while rendered insensible by a narcotic!

While specific discussion of the merits and demerits of chloroform and ether for the induction of general anesthesia would be inadmissible in this paper, it is believed certain features in connection with both agents—particularly the relative mortality and the dangers incident to their administration—may be legitimately included. Ether was formerly considered distinctly more dangerous than chloroform, because of its well known postoperative effects and deleterious action upon the kidneys. However, available statistics indicate that the average mortality from chloroform is one in three thousand, whereas that of ether is one in about thirty thousand administrations. The action of both drugs is through absorption by the lipoids; both produce marked depression, and their administration is accompanied by manifestations identical with those recognized as due to shock. Chloroform has a particularly deleterious effect upon the parenchyma of various organs, producing fatty degeneration, and that its effect upon the kidney is not less harmful than ether appears also to have been definitely established. Fatalities may ensue upon the operating table, from the effect of chloroform upon the heart, before any attempt at resuscitation can be instituted. Chloroform is decidedly more toxic than ether; even before a sufficient quantity has been administered to produce narcosis cardiac action may become markedly embarrassed, and accompanying vasomotor relaxation may assist in the production of imperfect circulation, thus favoring collapse; sudden cardiac failure may ensue before narcosis is complete.

In some respects the administration of ether is attended by infinitely less danger than chloroform, and, although its deleterious after effects have long been recognized, its immediate effects have been less thoroughly investigated. The essential cause of death during ether narcosis is from paralysis of respiratory function, but this accident is exceedingly infrequent when compared with cardiac failure resulting from chloroform. Although ether is less toxic than chloroform, the fact remains that there are certain circumstances under which it is contraindicated as a general anesthetic, and chloroform or some other agent must be substituted.

As early as 1800 Davy discovered the anesthetic properties of nitrous oxide when inhaled, and made the following suggestion as to its employment in surgery: "As nitrous oxide, in its extensive operation, seems capable of destroying physical pain, it may probably be used with advantage in surgical operations in which no great

effusion of blood takes place." His suggestion, however, remained unheeded for more than half a century!

The earlier efforts to induce anesthesia were doubtless with agents capable of local action. Little substantial progress was made in the rational application of local anesthetics, however, until about 1880, although cocaine was discovered by Niemann in 1859. The later progressive development of synthetic chemistry resulted in the discovery of other not dissimilar agents, such as eucaine, stovaine, tropococaine, alypin, the orthoform group, and more recently the product now being extensively used for the induction of local anesthesia, viz., novocaine. Chemical research was undoubtedly stimulated by the alarming toxic effects, which were not infrequently observed, to follow the injection of cocaine. The successful utilization of local anesthetics was made possible by Wood's discovery of the hypodermic needle.

There has, hitherto, existed some confusion as to the exact significance of the terms local analgesia and local anesthesia, also spinal analgesia and spinal anesthesia. It must be remembered that analgesia and anesthesia are not strictly synonymous and interchangeable terms, although common usage has practically caused them to be so accepted. Literally, local anesthesia signifies that as the result of the employment of a local anesthetic there is induced entire loss of the perception of feeling, including tactile sensibility, which may extend to distant portions of the organism provided the agent be injected into ganglia or nerve substance; on the other hand, analgesia merely means the production of local insensibility to the perception of pain (partial anesthesia), the sense of touch remaining unimpaired. Technically, therefore, the expression "spinal analgesia" should be substituted for "spinal anesthesia," since in the former tactile sense is not obtunded.

The development and popularization of local anesthesia (including spinal analgesia) may be largely attributed to the dangers and unpleasant sequelae incident to the administration of general anesthetics. While local anesthesia, *per se*, may not be ideal, it has a definite place in surgical practice and should always be accorded proper consideration in finally determining what is best for the immediate interest and ultimate safety of the patient.

Those familiar with the subject no longer doubt that surgical operations of the greatest magnitude may be safely and successfully performed under local anesthesia, and, according to Braun, *et al.*, by using novocaine (large quantities of which may be injected without fear of lethal dosage) it has been possible to resect jaws, perform nephrectomies, herniotomies, and almost every other type

of major surgical operation. In Braun's method of local anesthesia (the *bloc à distance* of the French) novocaine is injected well beyond and around the proposed operative field. The writer has, on several occasions, employed this method of anesthesia with the greatest satisfaction, although it is recognized that it has limitations and objections just as have other methods of inducing local anesthesia. Novocaine may be used in one half to one per cent. solution (Braun), to which should always be added a small quantity of adrenalin, both being carefully sterilized. Of the one half per cent. solution 200 to 250 c.c. may be injected without the slightest toxicity. The injections should be made twenty to twenty-five minutes before the operation.

In this connection the questions seem pertinent (a) what is the principal objection to local anesthesia, and (b) to general anesthesia? In addition to other dangers already mentioned, ether and chloroform are markedly depressing, i.e., they produce shock. To a less extent is this true of all other inhalation anesthetics, and least so of agents (such as nitrous oxide) which produce anesthesia by their mechanical effects rather than through toxicity. Local anesthesia is eminently satisfactory under certain circumstances, but is inapplicable to all classes of surgery, and, therefore, cannot be employed to the exclusion of other means.

It has been demonstrated by Crile that the ideal plan is a combination of local and general anesthesia, which he has termed the "anoci association" method. Primarily and essentially the object of either local or general anesthesia is to permit the surgeon to complete the required operative procedure without the infliction of either physical or mental anguish upon the patient. Therefore, the selection of a satisfactory anesthetic becomes a question of paramount importance. In addition to the dangers previously outlined, the shock accruing from the prolonged administration of chloroform and ether is familiar to every experienced surgeon. That there occurred severe shock to the nervous system through the special senses from the operation itself has also been noted and commented upon by various observers, and numerous ineffective methods have hitherto been suggested for its prevention; but not until the introduction of the "anoci" or combined method of anesthesia has surgery been possible without more or less psychic influence, especially where prolonged operations upon vital structures became necessary. While the psychic effects may not invariably result disastrously to the patient, in emphasis of the fact that this is not infrequently true, it is only necessary to mention that oftentimes profoundly septic patients have perished shortly after leav-

ing the operating table where chloroform or ether had been used. As a matter of fact, it has heretofore been frequently observed that in certain types of cases demanding operation the administration of a general anesthetic practically meant the death of the patient. Not an uncommon observation has been that septic patients, upon whom life saving surgery was imperative, did not recover consciousness after anesthesia, and succumbed within a few hours. Such patients left the operating table profoundly shocked, clammy with perspiration, and in infinitely more serious condition than when the operation was commenced. These observations induced many surgeons to adopt as the anesthetic nitrous oxide in this class of cases. It was noted that even septic patients to whom this gas was administered would recover, or at least death did not so quickly follow the operation, and when a fatality occurred it was from the pathology for the relief of which the operation was undertaken, thus showing conclusively that in these unfavorable cases the anesthetic practically determined the outcome. The comparative safety of nitrous oxide was demonstrated by the researches of Buchanan, who found, after careful study of statistics covering many millions of inhalations of this gas, that the mortality was probably about one in five million two hundred and fifty thousand administrations!

There can be no doubt concerning the wisdom of adopting a certain definite plan of inducing anesthesia, and in all suitable cases strict adherence, as a matter of routine to that particular method which has been found most satisfactory, is an important contributing factor to the safety of the patient. Moreover, as the anesthetist attains greater familiarity with the *modus operandi* and effects of the method adopted, there is less likelihood of accident or error in administration, since by repeated practice perfection is attained in any branch of medicine.

After selecting the most suitable method of anesthesia, another important feature demands careful consideration, viz., that the anesthetist shall possess adequate judgment and requisite skill, because in some respects his position in connection with the operation is quite as important as that of the operator. Virtually, the anesthetist has entire control of the situation, and in the interest of the patient may at any time demand that the surgeon discontinue the operation even though the work be unfinished.

When properly administered by a competent anesthetist who is thoroughly familiar with its effects, it is believed that nitrous oxide is the safest of all inhalation anesthetics; but when improperly given, or in the hands of those inexperienced in its administration,

it is the most dangerous. An expert can prolong gas-oxygen anesthesia indefinitely without serious danger to the patient, as nitrous oxide is nonpoisonous, or nontoxic, its effects being mechanically produced. If, however, an insufficient amount of oxygen be allowed, death ensues quickly from acapnia. It is, therefore, essential that there shall always be the proper admixture of oxygen, and this being assured gas-oxygen in competent hands is the safest known anesthetic.

Only an expert should be permitted to administer anesthetics under any circumstances, and no one can be legitimately considered expert unless he has had abundant opportunity for gaining experience and perfecting himself in that particular branch of medical science. It has been tritely remarked that "no individual can be starved so long as sufficient food is allowed to sustain life"; and an appropriate paraphrase would be that "no individual can be killed with nitrous oxide gas provided sufficient oxygen be permitted to maintain life."

The writer was among the first south of the Ohio River to adopt the combined method of local and general anesthesia in major surgery gas-oxygen and novocaine—the anoci association method of Crile) as a routine measure in suitable cases. This method has been employed for over two years and in an infinite variety and sufficient number of cases to warrant the statement that all the claims made by its originator have been fully justified. In the language of the eminent surgeon Moynihan, "the discovery of the anoci association method of anesthesia is one of the greatest achievements in the entire history of surgery!"

The advantages of the combined or "anoci" method of anesthesia are manifold, one of the most important being the guarantee of maximum safety to the patient. Psychic influence (mental shock), likewise the operative shock (traumatic excitation), which have hitherto been prolific contributing factors to unfavorable ultimate results, are eliminated by this method of anesthesia. All communication is abolished between the operative field, i.e., the painful area (fear excitor), and not only the conscious, but also the subconscious, perceptions of the patient, which literally signifies that all psychic factors which might otherwise exert a noxious influence are rendered inoperative. There is complete severance of nervous connection between the special senses and the brain, resulting in absence of harmful (noxious) psychic influence, with subjugation of excitation which might arouse biologic associative memory of injury, and instead of the threshold of the brain being lowered to sensitive impression it is raised. The brain cells are not exhausted

in their effort (through fear of danger) to escape the trauma, there being no communication between the operative area and the brain. And this communication is not reestablished until the injury has practically been repaired, i.e., until there is no longer any alarm transmitted from the area of trauma, the process being one of reconstruction rather than destruction. Brain perceptions are thus adequately protected from danger through every avenue; hence no pain, therefore no biologic fear; consequently no nerve cell degeneration, therefore no shock!

Under the combined method of anesthesia, in abdominal and pelvic surgery, there is entire absence of straining on the part of the patient during the operation and, there being no necessity for the use of retractors, traumatic injury to the tissues is correspondingly minimized. There is complete relaxation, and in consequence the surgical work is more easily accomplished with a greater measure of safety to the patient than under any other method of anesthesia. Contrary to the general belief, there is no increase in hemorrhage under gas-oxygen anesthesia, such as sometimes occurs with nitrous oxide alone. Jactitation, muscular rigidity and cyanosis are evidences of improper administration; with the requisite admixture of oxygen the skin remains normal in color. There is absence of postanesthetic disturbances, such as retching, vomiting, intense thirst, and the fearful expression of anxiety so commonly observed under the older anesthetic methods.

Since adoption of combined anesthesia it has been possible to successfully operate upon many patients who would heretofore have been considered inoperable risks, e.g., in aggravated cases of enlarged thyroids where the condition of the patient was desperate; patients with marked renal, cardiac and arterial complicating lesions; profoundly septic patients suffering from pathology demanding immediate surgery. The primary mortality in unfavorable cases has been materially reduced, and in selected cases no immediate fatalities have occurred where the combined method of anesthesia was employed. The remote mortality has also been markedly lowered, with reduction of postoperative discomfort to the minimum. Patients do not complain of postoperative pain (the so-called gas pains, etc.), there is little or no abdominal distension, and altogether they are much more comfortable in every way than those operated upon under the older methods of anesthesia.

Briefly, the combined local and general method of anesthesia (anoci association) may be described as follows: From a half hour to fifteen minutes before the operation the patient is given an hypodermic injection of morphine and atropine, morphine and

scopolamine, or morphine plain, dependent upon the judgment of the anesthetist. The patient is taken directly into the operating room, where gas-oxygen is administered as the anesthetic. The field being prepared, the line of proposed incision is injected with a one quarter per cent. novocaine solution. After incising the skin and fat, the fascia and muscles are likewise injected. The incision is then continued until the depth of the operative field has been reached. In abdominal surgery the peritoneum, after being opened, is reflected and injected beyond the line of incision with novocaine, followed by quinine-urea-hydrochloride in one half per cent. solution. The mesenteries are also injected with novocaine solution before their division. This is true of the intestines, the gall bladder, the appendix, the uterus, and the appendages. In renal surgery the injection is extended well around the kidney, although, as a rule, this organ, like other intraabdominal organs, is not very susceptible to contact impressions. After the tissues have been divided, all suture lines and areas in the track of ligatures and proximal thereto are injected with the quinine-urea solution. Before the incision is closed the muscles, fascia and skin are also injected with quinine-urea behind the proposed suture line. The novocaine solution must be well distributed by pressure before incising the tissues, and the quinine-urea solution should be injected well behind the operative field.

Nothing included in the foregoing should be construed as meaning that the combined method of anesthesia described is inapplicable to surgery in situations other than the abdominal and pelvic cavities. It is equally valuable, and may be as advantageously utilized, in the surgery of other regions where the administration of an anesthetic is required, e.g., the writer has quite recently performed several radical breast operations under this method of anesthesia; in no case was there the slightest pain or discomfort following the operation, nor were the patients really aware that any surgery had been performed upon them. Even in those instances where the good and sufficient reasons gas-oxygen cannot be used as the anesthetic and ether has to be substituted, it is my practice to employ the "blocking system" with novocaine and quinine-urea, the latter being routine in all operations in a clean field.

The time factor in major surgery, upon which much emphasis has heretofore been placed, is not of such serious consideration when the combined method of anesthesia is used, since the most dangerous factor (shock) is thereby totally eliminated. Contrary to previous teaching, even under the older methods of anesthesia,

the essential danger was not, *per se*, from the time consumed in the operation, but from shock incident to prolonged surgery upon vital organs. It was at one time believed that hemorrhage and shock were synonymous, but the fallacy of this hypothesis has been amply demonstrated. The effects produced by each upon the brain cells, however, are similar in their significance.

In conclusion: It matters not what method be selected for the induction of anesthesia nor who the anesthetist, it must be obvious that neither the immediate safety of the patient nor the ultimate outcome depends solely upon these factors. The responsibility of the surgeon and his duty to the patient require that he shall not be lacking in either anamnestic erudition nor operative skill. Other important features are: The observance of the strictest aseptic precautionary measures. The minimizing of operative trauma by avoidance of unnecessary manipulation of important organs and tissues. The careful execution of every operative detail, and the maintenance of requisite hemostasis. Determination as to the physical condition of the patient as an operable risk and, finally, the exercise of mature surgical judgment.

NOTE: In the preparation of the foregoing paper the author has drawn liberally from material presented in former contributions. *Vide International Clinics*, vol. ii, Series 24, 1914, pp. 177-198; *American Medicine*, July, 1914, pp. 470-473; *International Journal of Surgery*, July, 1914, pp. 239-243; *Kentucky Medical Journal*, April 1, 1914.

CANCER EN CUIRASSE, CASE REPORT

BY SAMUEL E. EARP, M.S., M.D.

*Clinical Professor of Medicine Indiana University School of
Medicine*

Indianapolis

I will not present an exhaustive discussion on the subject of cancer en cuirasse, but will eliminate certain details so far as necessary to contribute to the brevity of this report. However, in the conclusion I will call attention to some factors in pathology.

An important point in this case is metastasis as represented by large lymphnodes together with edema of the arm appearing before any clinical evidence of a breast tumor, and inoperable.

S. G.; female; aged forty-six years; height, 5 feet 8 inches; weight, 160 pounds; occupation, bookkeeper.

The family and social history furnish no requisite information; the previous history only as mentioned hereafter.

June 21, 1913, I saw the patient because of an attack of acute indigestion due to an excessive amount of potatoes which had been eaten.

I noticed that the left arm from shoulder to wrist was larger than the right by one inch in circumference, and was edematous. No information was obtained concerning this enlargement from the patient except that it had been noticeable for a few months, but decreased in size at times and that no physician had been consulted concerning it. This gave me more concern than the condition for which I was called.

I thought possibly of edema of thrombotic origin and more than likely venus pressure in the mediastinum. I examined the axillae, inguinal and cervical regions and, carefully, the mammae, but discovered no glandular enlargement. From the fact that I had treated the patient two years previously for acute parenchymatous nephritis complicated by uremia, I deemed it wise to ascertain whether a toxic agent came from this source, even though there were no clinical manifestations; however, the laboratory tests were negative. I was inclined to believe that there was a neoplasm in the mediastinum which was causing the pressure, and asked the patient to come to my office in a week, since my service at her residence would end on the following day. This request was not taken seriously, so I suggested that her condition might possibly be of a malignant nature and should be kept under observation.

Two months and sixteen days later (September 6th) the patient called at my office and informed me that she had been taking osteopathic treatment. She said she came to me because the left side of her neck was enlarged. Upon examination I found on the left that the cervical glands were enlarged, together with a cushion of tissue in the supraclavicular space, anteriorly, but not edematous. There was some infiltration of the axillary glands, and the left breast was enlarged, *en masse*. It was hard and tense, but not discolored, while the nipple was not retracted. The arm had increased in size and presented a mottled appearance; with me then came in review, tuberculosis, Hodgkin's disease, lues, thrombosis, mammary carcinoma, and sarcoma or carcinoma of the mediastinal glands.

By a process of elimination, of which this brief report will not warrant a summation, there was reasonably presented, as I thought, a conclusion that the cause was either carcinoma or sarcoma. Whether sarcoma of the mediastinal glands was responsible, since the arm was the first clinical manifestation and the breast at a later period, or whether it was possible for the glandular structure of

the mamma to be the seat of a carcinomatous foci, was a problem. I had seen two patients with syphilis in which the clinical picture was almost identical, both of which recovered under heroic doses of iodide of potassium and mercury. I requested a Wassermann, but did not obtain it; this being due to no fault of my own. Later, upon the patient's own volition, a blood count was made by Dr. J. R. Thrasher without my knowledge, at which time, if the patient had communicated this fact to me, I think a Wassermann could have been made which, just at the time, would have been an aid, for; if positive, I had in mind the use of salvarsan. The use of potassium iodide as a therapeutic test in this patient was nil. The patient neglected to see me again until eighteen days later (September 24th).

The cervical glands were decreased in size, the tissue enlargement in the supraclavicular region had disappeared, but there was little if any change in the arm, no change in the breast, unless more compact or indurated, if such could be possible; the axillary infiltration the same. I gave my opinion concerning the probability of malignancy and requested that she cease her duties as book-keeper and that I see her at her home.

October 27th there were some red markings radiating from the nipple, which was slightly retracted.

Dr. M. N. Hadley saw the patient with me November 1, 1913.

On November 14th the skin over the pectoral region was filled with small shotlike nodules and the consistence of the entire area and the left arm as well presented a hard, tense and inelastic surface not unlike that of scleroderma. At the suggestion of some relative, Dr. E. A. Lindenmuth saw the patient with me December 21st. This relative had in mind the use of the X ray, not knowing that at the outset I had given an opinion relative to its uselessness in this case. Progress was rapid, and on December 29th the intercostal muscles and those of the neck were tightly drawn and hard to the touch, the right side of the face was swollen, the breath sounds of the left lung were obscured, over the right lung could be heard loud mucous rales, the heart sounds were heard to the right of the median line accompanied by a mitral insufficiency, obstructed dyspnea with a whistling sound, cough and hoarseness were prominent, the left breast was hard and of ripe egg plant hue, with some vesicles around the nipple which a few days later were superseded by a superficial destruction of tissue. At this time the right breast was tense and appeared as if taken from a mold, with prominent nipple, but no discoloration. The left arm was not now

edematous, but rather gave the sensation to my hand as if encased in leather and in color was dark blue.

The pulse at all times was fairly good, and only toward the last was there a slight elevation of temperature.

From the last date, which I have indicated, all symptoms were intensified with a failure of vital forces until death January 13, 1914.

The evidence given relative to this patient I have had seems to indicate a carcinomatous metastases with probably a carcinomatous origin in the left mammary gland.

Rodman, in the *Annals of Surgery* for January, 1914, says, "I am not aware that any one has attempted to indicate just where the lymphatic glands show involvement in the several regions of the body where carcinomata generally arise," and reports a case which came to him for operation in which five weeks previously there was no clinical evidence, but at this time the entire mamma was involved, a lump in the subclavian triangle and moderate edema of the arm. He declined to operate.

An interesting feature of the case is its proper pathological classification. Various terms have been used in designating the same pathological process. Cancer en cuirasse of Valpeau, and lenticular cancer are variously used by writers to describe this process.

While all agree as to the essential malignancy of the condition, there has been a disagreement as to where the malignant changes first developed. Many dermatologists have believed that the condition was primarily a skin cancer, while pathologists maintain that the first malignant changes occur in the glandular epithelium of the mammary gland. The fact that the condition involves such wide areas of skin, and that this tissue occasionally shows such marked involvement before any discernible lesion of the breast can be noted, probably accounts for the views of some dermatologists.

On the other hand, microscopic sections of the involved skin and subcutaneous fascia show distinctly that the cellular elements of the skin itself are not involved. Such a section shows all the layers of the skin intact and in proper relation; but the lymph spaces in the subepithelial plexus are crowded with cells of glandular type such as would be expected as the result of metastasis.

EPIDIDYMITIS AND STERILITY

BY WILLIAM J. ROBINSON, M.D.

Chief of the Department of Genito Urinary Diseases and Dermatology, Bronx Hospital and Dispensary

New York

The following two cases present some points of interest. A and B are brothers. A was a "rounder," had several attacks of gonorrhea, and with practically every attack he developed an epididymitis; sometimes on the right side, sometimes on the left, and sometimes on both. He had several attacks of epididymitis *without any previous gonorrheal discharge*. In five years he had nine attacks of epididymitis, for the last five of which he was under my treatment. He then married, and at the end of eleven months his wife gave birth to a healthy child. A year later she had another baby.

B, the younger brother, had an attack of bilateral epididymitis, which laid him up for six weeks. Three or four months later he married, and, though he has been married for three years and is very anxious to have a child, his wife is still childless. She has been examined and nothing seems to be wrong on her part, but no spermatozoa can be found in B's semen, obtained either by stripping the seminal vesicles or in the natural way.

These cases seem to corroborate the observations made by a number of physicians, that the patient who had *one* attack of bilateral epididymitis is more apt to be sterile than he who has had *several*.

The explanation for this rather curious phenomenon is as follows: The explanation is not susceptible of scientific proof, but it is certainly plausible, and no better has so far been offered. When a man had a double epididymitis just once and never had a recurrence, it can be readily assumed that the lumen of his vasa deferentia are completely clogged up, so that no gonococci can penetrate them, in short, the way is completely blocked. People who have recurrent epididymitis show by this fact alone that their vasa deferentia are permeable to a certain extent to noxious agents, and so permeable the other way to the spermatozoa. It is also quite likely that a recurrent attack, in subsiding, causes the resolution or absorption of some of the inflammatory products of the first inflammation, and this causes the previously obstructed lumen to become permeable.

PERSISTENT POSTOPERATIVE HICCUP*

BY IRVIN ABELL, M.D.

Louisville

The phenomenon known as hiccup (singultus) is recognized as the logical result of spasmodic contraction of the diaphragm. This may sufficiently explain the mechanism of the observed clinical manifestation, but conveys no inference anent the underlying factor responsible for its production. Text book authors discuss the subject of singultus under the following classifications: (a) irritative, (b) inflammatory, (c) specific, and (d) reflex or neurotic. Many of them do not even mention postoperative hiccup.

It is quite well understood that any lesion which will produce irritation of the vagus nerve may excite spasmodic diaphragmatic contractions, and the determining causes may therefore be manifold. In certain instances, however, there appears to be an abnormal excitability of the inhibitory fibers of the vagus ("vago-tony" of Eppinger and Hess), thus rendering the individual particularly susceptible, and this is offered as the most reasonable explanation of the persistent postoperative hiccup which is sometimes observed.

Persistent postoperative hiccup, i.e., lasting for over a week, must be exceedingly rare in patients not the subject of renal, cardiac, vascular or cerebral disease. Examination of the literature reveals the records of but few cases of this character. The majority of the cases reported occurred as a terminal result of one of the diseases mentioned. Therefore, two cases coming under my personal observation, in which, despite treatment, postoperative hiccup persisted for eight and ten days, respectively, may be sufficiently interesting to warrant their being briefly reported.

On November 11, 1914, I operated upon a man aged sixty-three years for gangrenous cholecystitis due to the impaction of calculi within the ductus cysticus. The patient had always enjoyed excellent general health, and prior to the operation never had hiccup. Careful examination revealed no evidence of either vascular, cardiac or renal disease. Before the effect of the anesthetic had become dissipated, it was noted that the patient began to hiccup, and this has persisted for eight days.

From a surgical standpoint, there have occurred no untoward symptoms. There was no infection of the operative wound, bile has drained freely, the abdomen has remained flat, alvine evacuations have followed enemata and mild laxatives, kidney function is

*Clinical report before the Society of Physicians and Surgeons, of Louisville, Kentucky, November, 1914.

apparently normal, yet the hiccup has persistently continued both during the waking and sleeping hours of the patient, regardless of any method of treatment that has been instituted. There have been administered sedatives of various kinds, valerian, menthol, camphor, etc., also gastric lavage has been repeatedly practised, without any influence whatsoever upon the hiccup. The intervals between the hiccups vary from thirty seconds to half an hour. While the physical condition of the patient remains excellent, no one can foretell the final outcome.

In July, 1914, I operated upon a patient in which hiccup also persisted for some time. It was an interval operation for appendicitis, the patient being a male twentyfour years of age who had previously suffered from several attacks of acute appendicitis. Another surgeon operated upon him for hemorrhoids about a year before without untoward incident. Examination showed no systemic disease.

Following the operation for appendicitis, the patient began to hiccup before leaving the operating table, and continued to do so for ten days. His pulse in the meantime reached a point where it could not be counted, and dissolution seemed imminent. Two grains of morphine were administered hypodermically within eight hours, in an effort to control the hiccup, but the manifestation persisted even while the patient was partially unconscious under the influence of this drug. Why the hiccup finally ceased, at the end of ten days, will always remain a mystery. None of the remedies administered seemed to have the slightest effect.

I have many times observed hiccup which persisted for a short period after operations for acute abdominal lesions, also in the terminal stages of certain diseases, during narcoses, etc., but these are the only cases in my experience where the manifestation persisted for such an extended period, in the demonstrable absence of cardiac, vascular, cerebral or renal disease. There are several cases reported in the literature where persistent hiccup was a concomitant of uremia following prostatectomy and other operations upon the urogenital tract.

In discussing the foregoing report Dr. A. C. E. Percefull said he had seen several cases of hiccup lasting two to four days, in which relief had followed the administration of ten to twelve drops of spiritus etheris compositus every half hour.

Dr. A. J. Bizot spoke of a case in which hiccup had persisted for three months, the patient being a young boy in the advanced stage of pulmonary tuberculosis. After trying various remedies relief was finally obtained by hypodermic administration of apomorphine 1/20 grain, repeated as frequently as required to control the manifestation.

Dr. W. H. Long mentioned several instances in which hiccup had persisted hours or days following ether anesthesia. He thought musk was an excellent remedy in persistent hiccup, and had used it frequently according to the suggestion made by Dr. T. H. Stucky several years ago. . . . Dr. J. B. Richardson, Jr., cited several cases in which persistent hiccup had been relieved by the administration of musk as stated by Dr. Long. He had seen hiccup begin with the first inhalation of ether and continue throughout the operation, but had never observed persistent postoperative hiccup.

In closing Dr. Abell said he had tried every remedy recommended with the exception of musk, and would be glad to employ this in the next case which came under his observation. He had seen quite a number of cases where hiccup persisted from a few hours to two days, but the two reported were the only cases in his experience where the manifestation had persisted for the length of time stated, in the absence of renal, vascular, cardiac or cerebral disease.

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JOHN W. WAINWRIGHT, M.D., EDITOR

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JOHN W. WAINWRIGHT, M.D.
80 Washington Square E., New York

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EDITORIALS

SUNSHINE AND TEARS

We sometimes doubt the advisability of New Year's congratulations because we are present to witness the close of one and the beginning of another year. And yet, when seriously considered, we must admit that no matter how forlorn, how incompetent one may be to meet life, how little there may be to look forward to to other years, often a repetition of disappointed hopes, the absence of such joys as keep us in the current, man clings to what he has rather than hazard a toss for the alternative of the unknown. And this is, we think, as it should be, for the uncertainty of the future fills us with a resolve to enjoy the present even if only measurably so. For does not this often dreaded future bring us strange and unanticipated experiences, it may be the brightest and most enjoyable in our history. Today may be the beginning of a new era in our lives; conditions, if they have been heartbreaking, may change and the towering clouds may disperse, bringing tomorrow a new life with new and enjoyable experience.

Another year is near its close; tomorrow ushers in the new one, and we, because of a hope given to all of us, brush aside whatever of difficulties and vexations may have encompassed us around, turn our backs to the old, our faces to the new.

Let us enter into the joys of the season with the full determina-

tion to get what pleasures properly belong to it, not forgetting in our orisons those who have suffered, who are suffering. Let us keep our faces toward the East, being content with what we have, wishing no man less than his deserts.

MIXING CALOMEL WITH IODINE

A CHRISTMAS STORY

There was once a doctor who took a vacation in order to be sick. Three thousand surgeons, an equal number of Christian Scientists, some scattering and a Professor of Mathematics visited him. The number three thousand is selected as a compromise satisfactory to all concerned. The surgeons being diplomats and necessarily pupils of Machiavelli, the father of modern diplomacy, had learned from his teachings (*Del Principe*) that it is both stupid and reprehensible to be economical and parsimonious with anything so cheap as a lie. The Christian Scientists well understood that a lie which cost but an effort could become a valuable asset. The scatterers do not count, and the Professor of Mathematics stated that after mature deliberation he had come to the conclusion that the estimate was very nearly correct and would be capable of satisfying acute and critical analysis if the single word "thousand" were eliminated. He also thought that though the total of three appeared small that he might within limitations admit that the term "rapid-fire" could be applied to the questionings which were emitted.

On the doctor's table stood a bottle bearing the label Calomel 1 Tinct. Iodin. 3,000, and that is where the number three thousand really fitted. Upon a second label was printed "External use." The surgeons picked up the bottle, grew intensely interested, and one and all made the comment: "You know that calomel is absolutely insoluble." The Christian Scientists people did not touch the bottle, but said: "If you had not taken that stuff you would not have been sick." But the Professor made up the following problem: "What is the difference in mental acuity between surgeons, who hold in their hands a perfect solution and at the same time declare insolubility, and Christian Scientists who affirm that you have taken internally the contents of a bottle which is very plainly marked 'External use'?" The answer is still pending, though

sought for. The surgeons say the doctor is a fool. The Christian Scientist people declare that he is an inharmonious error and the mathematician wishes to know what is to be demonstrated, inasmuch as the surgeons copied the label and carefully put the copies in a safe pocket, and the Christian Scientists seemed to get mad. Therefore, perhaps, it would be well to state the preliminary premises and work up to the final Q. E. D. in something as near precision as possible.

There was once upon a time a writer upon *Materia Medica* named Roberts Bartholow, who taught in 1879, page 196, "Septic infection may be prevented by tincture of Iodin." And on page 199: "Calomel with Iodin forms red iodide of mercury."

Some years later (say six) this man gave a lecture in New York and the writer asked him this question: "Why not combine Iodine and Calomel and make nascent biniodide?" His answer was: "Either you have struck a gold mine or a mare's nest. At any rate, no septic process could possibly go on in the presence of such an application. Eliminate irritation and its promises are very large indeed."

If any one will have his Tincture of Iodin put up, with one to 3,000 of calomel added, it may be used just as it is at present, but its efficiency is increased. This solution diluted (5 i to 5 i) with sterile water or normal salt makes an ideal wound dressing, and for internal use it is unapproachable. Sore throats, bronchitis, tuberculosis and a lot of other things are quickly benefited. The method of administration is, to begin with, one drop in a tablespoonful of sherry and this diluted as desired, given before each meal and increased one drop pro dosa. It surely is not necessary to add to the literature in view of the many text books on Therapeutics, all of which treat at greater or less length upon Iodine and the iodides. More than one physician has rediscovered Iodine after a brief study of the subject. This little story is only to show how the every day tincture may be improved. And now the aforesaid surgeons say: "Why didn't you write it up before, since every hospital in the country is interested?" The Christian Scientists remark: "You know we don't believe in germs anyway." And the Prof. of Mathematics concludes that the only thing demonstrated is that any man

can demonstrate Iodin-Calomel for himself. At any rate, inasmuch as this is Christmastide the writer is sure of winning the good will of every man who does add calomel to his Iodin, for its good works do follow its employment.

DOUGLAS H. STEWART.

THE CLINICAL ATMOSPHERE

Some years since we gave expression to the belief that the atmosphere prevailing in the sick room was potent for good or evil to the ailing. Since then we have encountered convincing proofs that there are those, physicians and friends, whose attitude is one of carelessness, indifference or ignorance or a combination of all.

The sick room is at once the hope and the despair of the invalid and his friends. To the layman it has always the color of misfortune or disaster. Those interested or the curious present themselves with anxious countenances on which is written doubt, while the advent of the physician or surgeon is awaited with hushed voice and bated breath. Audible questions are sure to be propounded which unsettle the composure of the patient, especially if answers are returned of a doubtful character. There is usually an odor or subtle atmosphere which penetrates the surroundings entirely foreign to those to which the patient is accustomed, one which he identifies as of the hospital, the sick room, a street accident, from whence he has seen the body of a near one, family or friend, carried to its final resting place, beyond his further sight or association. The patient, unusually acute and alive to his surroundings, sees, hears and makes mental note of all, notes the effect of which for good or bad will depend upon whether the atmosphere and attendants are cheerful or otherwise.

What can the physician or surgeon do to lessen these evil effects, prevent shock and give a wholesome psychological influence to his patient, the assurance that with the patient's help all will end satisfactorily? Everything, for upon and from him must come this reassuring influence. A straightforward look, a steady hand, actions which will indicate to the close observing patient that the physician has the case or emergency well in hand. These are factors which will carry great weight. Then, officious friends or

spectators should be excluded from operations and from the sick room. Caution should be exercised by the operator not to remark upon the merits of the case to assistants while administering anesthetics, for in that borderland between consciousness and complete anesthesia remarks are comprehended, which, if they be of an unfavorable character, doubt as to the outcome, carry such weight, so influence the patient's mind that no amount of after assurance will completely eradicate, and consequently harm is sure to ensue. We recall a case when a thoughtless brutal remark by a surgeon while the anesthetic was being administered operated to produce so profound a shock that the patient died within an hour after regaining consciousness, repeating the surgeon's words: "What's the use, he'll die anyway!" The operative procedure disclosed a condition hopeful for speedy and lasting recovery. Death clearly resulted from psychical influence.

Horrible to relate, another case, one of difficult childbirth, where it became necessary to administer an anesthetic in order to change the presentation. The attendant introduced his hand while the patient was in that borderland, the semi consciousness from chloroform, and audibly declared to the anesthetist that in his opinion version would not avail as the head was too large to pass and that dismemberment would have to be resorted to. The results were disastrous to the mother; whether largely due to the remark or not we shall never know.

Every care should be exercised to counteract the depressing effect of a clinical atmosphere both in the operating and sick room, and it is upon the physician that this responsibility rests. There should be an abundance of sunshine, and hope should radiate from every face which the patient is compelled to look into; no depressing or disheartening remarks in the patient's presence. The physician or surgeon should appear a fearless and self confident commander, go about his duties feeling and showing in his every action that he is master of the situation. In the great majority of cases, a corresponding cheerfulness will be communicated to the patient, who will become the willing and obedient sufferer with an all abiding faith in his attendant to the end that he may be safely delivered from his distress.

HABIT

That habit plays an all important part in the psychology of our life must, we think, be accepted. It is common to man and the lower animals, as well as to vegetable and plant life. It is determined as a fixed tendency by the results of repetition and association; to think, act or feel in any particular way under special circumstances, if repeated, becomes habit. Its greatest importance may be said to exist in the sphere of voluntary action. It simplifies movements required to achieve given results, makes them more active and diminishes fatigue. It also diminishes the conscious attention with which our acts are performed. Physiologically, habit implies that the higher nervous functions are relegated to the lower or automatic centers. Psychologically regarded, it implies the probability of mental progress; for what we have learned becomes a matter of course, is unconsciously utilized when the proper impulse is given, thus allowing us to drop one topic and take up another without fear of forgetting the first. Habit covers all and every form of voluntary action that we have made our own; becomes an individual rule of conduct. Custom is habit because of its regularity and uniformity; it exercises moral constraint. Habit plays an important part in what we recognize as evolution and changes with changed environment. Man and animals may be forced to change their habits because of changed environment. Whales are evidently descended from an ancestor which traveled on all fours, and birds from four footed reptiles. Because of changed conditions of life and competition, thus leading to a change of habits, they no longer resemble their ancestors. This change of habits leads to changes in the use of function. "Certain complex actions," says Darwin, "are of direct or indirect service under certain states of the mind, in order to relieve or gratify certain sensations, desires, etc., and wherever the same state of mind is induced, however feebly, there is a tendency through the form of habit and association for the same movements to be performed."

The most complex and difficult movements can in time be performed without the least effort or consciousness through an acquired habit. Thus, what is extremely difficult may through habit come to be unconsciously performed with accuracy, such, for in-

stance, as fingering the piano keys or the violin strings. What at first appears to be impossible of accomplishment, through the influence which the will exercises over the nerves controlling motion and sensation, become automatic. In animals this is noticed in the acquirement through training of movements which are not natural to them; the single footing of the horse, pointing of the dog; and these habits become in a large measure hereditary; originally performed for a definite end, later through inherited habit. The lifting of one foot by a dog when intensely watching another, or when at a stand of wild birds, the alternate movements of the forefeet of puppies and kittens against the mammary glands when nursing, the scratching of very young chickens when feeding, even when fed on a wooden floor, are examples of hereditary tendency. A man will scratch his head when in deep thought or perplexed, another rub his eyes or give a nervous cough when embarrassed. Again, he will close his eyes when seriously contemplating a proposition, nod his head in affirmation or shake it when disagreeing. Women will often be found moving their jaws when using scissors, children protruding and twisting their tongue while learning to write.

These expressions of habit can be said to be physiological. Another phase of habit may be termed the pathological, best illustrated when one is disturbed in the usual routine of life. The husband habitually accustomed to sleep on the right side of the bed will be much disturbed and his sleep interfered with when compelled to change to the left. If things go wrong in making his toilet in the morning, his usual habit is disturbed; if the breakfast is out of the usual, tea served instead of his accustomed coffee, or a member of the family absent from the breakfast table, he is upset. And these happenings, small as they seem to others, do greatly interfere with his peace of mind, lasting throughout the entire day; he is said to be grouchy, cross to his associates, uncongenial or discourteous instead of in his usual frame of mind. The day will be filled with unusual experiences and becomes tedious. He returns home fatigued and does not recover himself until sleep, nature's sweet restorer, has been indulged. This is not a grouch, but a real disturbance due to a potent cause. The effect cannot be lightly cast aside, but must be endured until equilibrium is restored.

THE DINNER

The important function of the dinner, where all of the family should congregate, as well as friends present, should be looked forward to with pleasant anticipation, for, as is often the case, this is the only meal at which all can meet. The dinner should not be a formal affair, given over to the ingesting of food in a perfunctory and set plan, be partaken of in schedule time, but a rendezvous where comradeship should prevail, and when every and anything which can contribute to the zest and pleasure of the occasion should be indulged. It is here we should be at our best; best in spirits, in humor, with clean bodies and clean minds. Every member of the family should be allowed, encouraged to partake of the cheer, join in the conversation, which should always be general, relate and discuss happenings personal or otherwise of the day, ask and receive advice without restrictions or annoyance. There should be jollity, laughter in abundance, not to the embarrassment of any individual present, but pertaining to happenings, anecdotes, clean humor, much amusement. A member of the family should never be displeased or harshly spoken to at the dinner table, for the mental effect will be bad, besides, it will surely disturb the function of digestion. Preparation should be carefully made for the important function of the dinner *en famille*, everything, in fact, done which will add to the pleasure of all, and each individual member of the family from the grandsire to the infant should be present always at his or her best. We believe that the baby, if there be such, should be in attendance at the dinner regularly just as soon as he can sit in a high chair; should be a part of the company and enter into the festivities for the educational, moral and other advantages to be gained; the character of attention given him will count for much in fashioning his life. It is this picture of home life, particularly the family gatherings in the dining room, which will remain most enduring until the end, and it is this picture which will be fashioned and become part of our lives, to remain with us under all conditions, whether to the hovel or the palace, the prison or the church, whether in joy or sorrow, whether tossed upon stormy billows or in peace and prosperity; when the

hair becomes white, the form bent, it will still be *our* picture and, good or bad, we will remain a part of it.

Blessed be the memories of home and thrice blessed the companion and comradeship of the daily gatherings at the table in our father's house.

TYPHOID CARRIERS

Recent findings of sources of serious epidemics of typhoid fever in healthy persons who were typhoid carriers, prompts the question whether New York City, or any city or community, is properly and adequately guarded from like sources of infection; whether the authorities are exercising the proper amount of care to detect and segregate these individuals. Only recently the Wisconsin State Laboratory of Hygiene has reported twentyone cases of typhoid fever occurring in persons of a single small town traced to a farmer who had recovered from the disease and found to be a pronounced typhoid carrier. The *Journal of the American Medical Association* calls attention to two epidemics of typhoid, one reported by the Pennsylvania Health Department, traced to a kitchen domestic who infected forty students of Lehigh University, the other by the Hygienic Laboratory of the California State Board of Health, giving details of ninetythree victims of a domestic who infected them through germs disseminated through the food she cooked.

It is not long since a woman cook was found by the New York Health Department to be a germ carrier and promptly isolated on North Brother Island. A suit for damages was filed against the city by her attorneys for "illegal detention," and, while the action never came to trial, she was released and promptly disappeared after a promise to report to the Health Department periodically, a promise which has not been observed. It is not known where this woman nicknamed "Typhoid Mary" is, but it is safe to predict that when, if found, she will be the center of a typhoid epidemic.

The health authorities should be given greater power to apprehend and detain these people when discovered, otherwise typhoid fever will never entirely disappear. It is true that it would be impossible to compel all those who have suffered from typhoid fever to report to the health authorities for examination to determine

whether the typhoid bacilli were to be found in their stools or urine, but would it not be feasible for all persons recovering from the disease to be kept under surveillance for a sufficient time to determine whether they excrete the bacilli. Typhoid fever is a reportable disease and could therefore be easily kept trace of. And even this precaution, while it would help very materially, would not prove absolutely trustworthy, for we believe that it is sometimes years after recovery before the bacilli appear in the dejecta or urine. Our health authorities should look into this matter and determine a way to avoid this menace.

WHAT IS SUCCESS?

It is not the man who accentuates obstacles or who invariably anticipates failure that we are patient with or attracted by; nor the one who views every suggestion as an attempt to impoverish him; the one who recoils from the hearty salutation or the warm hand clasp; the one who sees lurking in every act of others evidences of a design to attack his reputation or, infinitely worse, his purse; who sees proof of an unholy alliance when those of opposite sex are cordial to one another. Such a being is a misanthrope, a pessimist, and sooner or later will become a hypochondriac, a misfit in all his relations to others. He will succeed but measurably, if at all, and walk alone, because it will be next to impossible for any one to have pleasure or enjoyment when in his company. He becomes a joy killer.

The man who succeeds is he who views the pathways of life as golden hours of probability; who regards the rungs of the ladder by which he was able to ascend as veritable jewels, reflecting hope and lighting the way to the temple of achievement. He may be thought visionary, seem unsubstantial, impracticable, but he will be sure of himself and have faith in his fellowmen; will see opportunities when offering and will meet them more than half way; will love wife and children, count price as nothing of what will add to their comfort or happiness; will have friends who sooner or later will take him at his own valuation, which is sure to be high. This is the man who wears the epaulets, enjoys public esteem and whose check is never protested; the one who succeeds; an optimist.

DIGEST OF CURRENT MEDICAL LITERATURE

The Prophylaxis of Cancer.—W. J. Mayo, *Ann. Surg.*, 1914, lix 805, states that all vertebrate animals suffer from cancer in situations affected by their habits or conditions of life, leading to local lesions in the protective mechanism. He believes that local lesions should be looked upon as an invitation to cancer without regard to just what the actual cause of cancer may be. The term precancerous should be limited to these conditions which clinically and microscopically cannot be said to be surely benign or surely malignant. The character of the cells are changed; they lack differentiation, but as yet there is no infiltration of the surrounding tissue. This cellular change is found in the periphery of malignant growths and in conditions which have later developed malignancy. The local lesion is the invitation and the precancerous condition the probable acceptance.

He divides the sites of local irritation into three groups: (1) congenital or acquired neoplasms, such as moles, warts, and benign tumors which may undergo malignancy; (2) trauma, which strongly influences not only the development of sarcoma but of carcinoma; (3) chronic irritation, which he considers the most important of all the precancerous conditions whether the result of mechanical, chemical, or infectious agencies. Among the many examples cited are: the development of cancer in the mouth from betel nut irritation in India, amounting to nearly half of all the epithelial cancers of the country; the development of cancer in local lesions produced by heat, as cancer of the lip from smoking, the "Kangri" sores following the burns which form more than 50 per cent. of all cancers in Kashmir; those cancers on the skins of locomotive drivers who have been exposed for years to the direct action of heat; cancers following chronic irritation due to different forms of radiant energy, X ray, etc.; cancers following the local lesions due to infections, such as bilharzia of the bladder, *treponema pallidum* in keratosis linguae, nematodes in teriticular tumors in horses and in gastric cancer of rats; and the "horncore" cancer of cattle, due to the irritation of the ropes through the horns with which cattle pull their loads. If the betel nut were not used in India and the Kangri basket in Kashmir, the cancers in these two countries would be reduced one half.

The author then calls attention to the importance of applying the

evidences of local chronic irritation in the production of cancer to the solution of problems in regard to the development of cancers on the internal mucous surfaces of the body. For example, cancer of the gall bladder from gall stone irritations and cancer of the stomach following gastric ulcer. Fifty per cent. of cancers of the pelvis of the kidney are demonstrably superimposed on extensive renal calculi formation. Carcinoma of the appendix usually occurs in association with chronic obliterative processes. In the sigmoid and rectum, the irritation in diverticula may have given rise to malignant disease. Cancer of the stomach occurs in 30 per cent. of all cancers in civilized man, but is not common in primitive races or in lower animals. When cancer of a certain organ is found in only one class of individuals or one species, it means a single cause, such as betel nut cancer and Kangri cancers. Cancer of the stomach must be due to one cause; if many, the lower animals and primitive races would be more often affected. Something in the habits and customs of civilized men in connection with the cooking and preparation of food must be responsible for this large percentage of cancer of the stomach. A comparative investigation would be of value.

In conclusion he says: "I would again call attention to the fact that preexisting lesions play the most important part of the known factors which surround the development of cancer; that such precancerous lesions are produced by some habit or life condition which causes chronic irritation; that where cancer in the human is frequent a close study of the habits of civilized man as contrasted with primitive races and lower animals, where similar lesions are conspicuously rare, may be of value; and finally, that the prophylaxis of cancer depends, first, on the change in those cancer producing habits, and second, on the early removal of all precancerous lesions and sources of chronic irritation.

Nascent Iodine in the Treatment of Pulmonary Tuberculosis.—E. G. Reeve, in the *Practitioner* for September, 1913, reports the results obtained among 76 cases in a large infirmary by the intensive liberation of iodine in the organism through the interaction of chlorine on potassium iodide. Chlorine water is first prepared by allowing two drams (8 grams) of concentrated hydrochloric acid to act on one dram (4 grams) of potassium chlorate in a dry 24 ounce (one litre) bottle. When the colored gas reaches the neck of the bottle, the latter is tightly corked and the reaction allowed to continue for fifteen minutes, after which water is gradually introduced and shaken with the gas, until the bottle is filled. The treatment consists in giving the patient 30 grains (2 grams) of potassium

iodide in a half pint (250 c.c.) of water at breakfast time—7 A.M.—and four hours later, one ounce (30 c.c.) of chlorine water in a half pint of lemonade. At first 3 ounces of chlorine water are given daily, at two hour intervals. This produces signs of iodism, which pass off after four or five days. At the end of three weeks the dose of chlorine water is increased to 4 ounces, and later to 5, without further ill effects.

This treatment produces a marked inflammatory reaction around all infective foci in the body. This results in an initial rise in temperature in nearly all cases, most pronounced about the third day. Later, the temperature shows an improvement. The beneficial effects of the treatment appear very rapidly, the sputum becoming steadily more mucous, and decreasing in quantity to a practically insignificant amount. Corresponding improvement in the cough, with eventual complete cessation, and relief from insomnia, takes place. All but three of the patients gained in weight, the increase being about 12 ounces a week in favorable cases. The appetite was augmented. One third of the cases treated for three months became free from tubercle bacilli in the sputum. Mixed infection in the sputum was overcome in each of a series of thirty cases in which it had been found to exist. In those patients whose condition was known by physical signs, there was great improvement as regards the moist sounds, though the dullness showed little change, and in a few cases increased. On the whole, the effects of the treatment are beneficial, though the author is not as yet able to state whether it will produce permanent cures. An advantage of the plan is that after the first week the patient does not need to be under constant surveillance and can continue to work.

Therapeutic Applications of Emetine and Ipecacuanha.—L. E. Bertrand, in *Bulletin de l'académie de médecine* for April 14, 1914, refers to a case of dysentery, with stools containing both amebas and spirochetes, in which four subcutaneous injections of one half grain (0.03 gram) of emetine hydrochloride on successive days caused not only the amebas, but also the spirochetes, to disappear from the alvine discharges. This tends to show that the parasitocidal properties of emetine are not entirely confined, as has been thought, to the dysenteric ameba. On the other hand, in three cases of nontropical dysentery, with stools containing spirochetes but no amebas, treated with emetine by Tribondeau, a clinical recovery, with normal consistence of the stools, resulted in two or three days, though the spirochetes did not disappear from the discharges. This indicates that emetine may be of use in some way other than as a

destroyer of pathogenic microorganisms and confirms the earlier observations of Bertrand with the entire drug ipecac in the chronic endemic enterocolitis of tropical countries. In this condition he has often found ipecac to cause an astonishingly prompt improvement in the consistence of the stools as well as a reduction in the number of bowel movements per diem. Likewise, in the common mucomembranous enterocolitis of the temperate zone, Tribondeau found the alkaloid emetine useful both in improvement in the bowel functions and in reducing the amount of mucus secreted in the intestine. That ipecac and emetine are not therapeutically equivalent, and more especially, that the action of the former does not depend wholly on the latter, is indicated by the known efficiency of deemetinized ipecac in tropical dysentery, pointed out by Harris and later by Manaud.

In illustration of the hemostatic properties of emetine, the author refers to a case of abundant hematemesis in duodenal ulcer, reported to him by Palasne de Champeaux, in which the bleeding was promptly arrested by a single hypodermic injection of two thirds grain (0.04 gram) of emetine hydrochloride. In a case of hemothorax due to a penetrating wound of the chest, the drug appeared also to be of value. An injection of two thirds grain was given daily in the first six days of treatment, and recovery took place rapidly and uninterruptedly. Bertrand calls attention to the efficacy of minute doses of ipecac in hemoptysis and fibrinous pneumonia, and points out the consequent futility of trying to explain the hemostatic effect of emetine through circulatory depression, revulsion, or induction of nausea.

Sprains.—Shuttee, Missouri State Medical Assn. Journal, September, 1914, says the modern and correct treatment of a sprain is by proper strapping, exercise and massage. The strapping must be applied in such a manner as to envelop the injured joint completely, otherwise the requisite degree of pressure cannot be obtained which is necessary to secure compression when the parts are exercised. In this way complete and early recovery may be brought about, and the dangers greatly decreased. In addition to this, massage should be practiced every time the strapping is changed, beginning at the upper part of the swelling, the manipulation being a steady, uniform, gentle movement of stroking or squeezing, directed upward from the distal part of the joint, but always commencing on the proximal side of the injury, or at the proximal limit of the swelling. The object is the emptying of distended veins and waterlogged

tissues. By beginning pressure at the upper part and gradually descending in stroking, much of the effusion can be pressed out at each sitting, and usually in a few days the swelling is gone. The sprained part, as already stated, should be used as soon as properly supported by adhesive plaster, and thus by muscular contraction the effused material is rapidly pressed out of the injured part.

If the patient is not seen until after great swelling has taken place, it may be best to rub the joint two or three times a day until the swelling is somewhat reduced, when the plaster should be applied. As soon as the plaster has been applied, the patient should be made to walk, and in the first few attempts an assistant may be necessary partly to support him; but he should be strongly impressed with the fact that his recovery will be rapid in direct proportion to the use of the joint. The first few attempts to walk will be accompanied by some pain, and at times this will be great, but it will diminish at each succeeding attempt, and soon become negligible.

Emotional Glycosuria.—*Journal of Biological Chemistry*, Baltimore, May, 1914. In order to obtain additional data on the subject of glycosuria in the insane, Folin, Denis and Smillie, of Boston, examined the urine of 192 patients at the McLean Hospital for the Insane. In 22 of these they found unmistakably positive sugar reactions with Nylander's, Benedict's and the phenylhydrazin tests. The great majority, but not all, of those who had sugar in the urine suffered from depression, apprehension or excitement. Some of them had been in apparently the same condition with reference to the emotional state for several years. Of 664 consecutive urine examinations made at the Danvers State Hospital for the Insane, the number giving a positive test for sugar was 58. Of 34 second year medical students examined before and after an examination, 1 had sugar both before and after the examination. Of the remaining 33, 6, or 18 per cent., had small but unmistakable traces of sugar in the urine passed immediately after the examination.

A similar study was made on second year women students. Since these students were younger and presumably much more excitable than the medical students, it was thought that even more striking results might be obtained. This expectation did not prove well founded. Out of 36 taking the examination and who had no sugar in the urine on the day before, 6, or 17 per cent., eliminated sugar with the urine passed immediately after the examination. It seems reasonably certain from the results obtained that pronounced mental and emotional strain may produce temporary glycosuria in man.

The Continuous Bath in Mental and Nervous Disease.—Weygandt, *Medizinische Klinik*, Berlin, April 26, 1914, traces the history of hydrotherapy in mental disease from the early days when Boerhave in the seventeenth century advocated as a therapeutic measure in mental disease the fright from being suddenly thrown into cold water. The continuous tepid bath has not only a welcome tranquillizing action, but it prevents or aids in the healing of skin affections. In the thousands of cases in which he has applied it he has never noted any byeffects, except extremely rarely a slight tendency to syncope. Of course, patients with weak hearts may require heart tonics and special care. Any special liability to eczema from the long immersion is easily counteracted by greasing the hands and feet or the whole body. The continuous bath is particularly useful in warding off decubitus in elderly paretics, which so often hastens the fatal outcome in progressive paralysis. He asserts that even in his own experience alone the effect of the continuous bath has been so beneficial on the metabolism and agitation that several patients improved to such an extent that they could return to business, and in the numerous other cases it has prolonged life for years. He has an arrangement in the tub that rings an alarm when the water in the tub reaches 38 C., if the water reaches 40 C. (104 F.) the alarm rings simultaneously in the superintendent's office. One attendant cannot attend to more than four tubs if the patients require much care. He adds that the continuous bath is an important aid also for neurasthenics; the effect is more dependable than mere bed rest, as he found by personal experience during a nervous breakdown from overwork. It is also an important aid in healing up decubitus with spinal cord disease, mal perforans in tabes and in spastic paralysis.

Syphilis and Insanity.—Savage's experience, *Practitioner*, London, May, 1914, both in hospital and in private practice, is that syphilis is the dominant, if not the sole, cause of general paralysis of the insane. Syphilis may be a cause of congenital mental defect; it may be a cause of preventing healthy development of the brain; or it may interfere with development by the senses, and may thus lead to defective education. It may give rise to convulsions, which may either become established, as epilepsy, or may lead to mental weakness. It may also affect the moral development; and patients with a syphilitic inheritance have, in Savage's experience, not infrequently been morally defective in one way or another, and incapable of recognizing their social duties. Syphilis may cause hypochondriacal feelings, and the presence of stigmata may make the patient believe

that he is a suspect, and may thus give rise to delusions of suspicion, melancholia and suicide. Congenital syphilis is almost certainly the cause of adolescent general paralysis. Ordinary general paralysis, locomotor ataxy with mental symptoms, are associated in nearly all cases, in Savage's experience, with a history of syphilis. Besides this, there are many forms of dementia depending on arterial degeneration which may produce general brain decay, or local troubles, such as softening or apoplectic seizures.

A Note on the Management of Burns.—J. C. Plain, *Am. Journal of Surgery*, 1914, XXVIII. By Surg., Gynecology and Obstetrics. There are four things to take into consideration in the treatment of burns: (1) To combat the shock if it exists; (2) to relieve the pain and nervous excitability; (3) to prevent infection and protect the exposed living tissue; and (4) to help nature in her work of repair.

The treatment of shock is just the same when it occurs from burns as when it arises from any other cause. To relieve the pain and nervous excitability the author gives a hypodermic injection of morphine and atropine. In addition, he bathes the parts with cool water, at about 60 degrees F., to which has been added a teaspoonful of bicarbonate of soda or sodium chloride to each quart of water. This bathing is kept up until the patient is more comfortable or until the hypodermic has had a chance to work. The prevention of infection is very important and should be given vigorous attention.

The author takes exception to two things which are often recommended: (1) The opening of all blisters; and (2) the use of carron as a protective dressing. In opening a blister the denuded area is deprived of the nonirritating serum, which is less irritating than any artificial medium, and the dead epidermis becomes an irritant, which favors infection. Carron oil and other similar preparations prevent proper drainage of the burn.

The author advocates the following care of a burn: The entire area and the surrounding parts are mopped or sprayed with hydrogen peroxide and then mopped with dry gauze. Strips of gauze which have been soaked in a 2 per cent. solution of picric acid in dilute alcohol are then applied. Over this is applied a thin layer of cotton. This dressing is changed as often as it becomes soiled, and each time it is changed the burn is cleansed as before. If sloughing occurs, the dead tissue should be removed as rapidly as it becomes loosened. When the oozing has largely ceased, the author uses strips of rubber tissue which have been soaked in 1:1000 bi-chloride solution.

Treatment of Whitlow and Felon.—Beverley Robinson, *New York Medical Journal*, June 27, 1914, recommends the use, morning and evening, of equal parts of glycerin and a saturated solution of magnesium sulphate. Aseptic gauze should be saturated with this mixture, then covered with thin rubber tissue and a little absorbent cotton, and held in place on the finger with a narrow gauze bandage. During the day this application may be removed advantageously for a while, and the finger soaked in hot water and borax (half an ounce of borax to one pint of hot water) at least during fifteen to twenty minutes, two or three times in twentyfour hours. The borated solution is very useful in reducing local pain and redness, and probably limits the spread of the disease. Prior to its employment, the author used a half saturated solution of boric acid in water, with very poor results. When the felon is well on toward recovery, after several weeks of wet dressing and soaking, oxide of zinc ointment, applied at bedtime or during the day also, is notably beneficial in curing what still remains of pain, redness and swelling.

Observations on the Value of Studying the Pulserate with the Bloodpressure.—H. A. Hare, on March 5, 1913, read at a meeting of the College of Physicians of Philadelphia a paper on the above. He stated that the sphygmomanometer had done harm in leading people to believe that they had serious disease, and that he regarded it a great mistake to let patients know their bloodpressure for two reasons: First, because he attaches undue importance to what may be a temporary variation. Second, because he attaches undue importance to a variation which is so small from what we consider normal range that we may pay little attention to it. Further, if he knows what his pressure has been, he is in a ferment of excitement to know what the result of his next examination is going to be. It is the universal idea that 130 is the average systolic pressure, and that wide variations from this are to be considered abnormal. He believes that all of us as we grow older, with few exceptions, develop a pathologic norm, a condition essential for our existence. As a man's blood vessels become a little less elastic, the heart must drive the blood more forcibly, in order to get it through the vessels. If the heart does not do this, and does not maintain the high blood-pressure, the patient has evidence of circulatory failure. He is frequently impressed with this fact in seeing cases that have been given large doses of the nitrites. The patient is in a worse condition than with a pressure at 160, because the blood paths have been widely opened and the heart is not able to supply the peripheral tissues

with the quantity of blood they ought to have, because of the fall in pressure.

The Use of Boiled Milk in Infant Feeding.—Dennett, *American Journal of Obstetrics*, September, 1914. I have found it necessary on occasions to boil milk for infant feeding, and in not a single instance have I found that any gastric disturbance followed upon its use. I do not find that raw milk is more digestible. I use boiled milk for intestinal indigestion, and continue it for two weeks, and then change to raw food for a few days or a week. The stools will then be normal, except for a few curds. These cause no discomfort, and may disappear in some cases, but in others, infants will get up an intestinal indigestion by change from boiled to raw milk. Normal infants usually stand the change well. It is impossible to say whether the change from boiled to raw milk will cause trouble, but it is more likely when the boiling is stopped. In hospitals, following a sweeping order to stop boiling the milk, I have noticed that curds appeared coincident with the use of raw milk. When the boiling was resumed the curds disappeared. In cases of emaciated infants we tried raw milk, but in only two cases did the stools clear up without boiling the milk. In my experience, the prolonged use of boiled milk does not cause rickets, anemia or malnutrition. With the use of orange juice it stops scurvy. In some cases it causes constipation, but this is more easily overcome than when using raw milk.

Healing of Skin Cancer with Salicylic Acid.—Weinbrenner, *Munchen. Med. Wochenschrift*, January 20, 1914, has treated rodent ulcer by applying pure salicylic acid on the affected parts and then covering with Beiersdorf's zinc plastery, and 20 per cent. salicylic acid plastery. The sloughs were removed every second and every third day, the surface bathed with boric acid solution, and then pure crystallized salicylic acid applied. The result of the treatment is a reddening and swelling of the parts surrounding the lesion, while the tumor substance is converted into a grayish red, closely adherent slough, which may be pretty easily loosened after two or three days. In the further course of treatment there is a deeper and more extended action, which is accentuated in appearance by the swollen periphery. After the slough has been removed the borders of the ulcer appear indented and irregularly bounded. The cartilage may be attacked, but this tissue and the vessels are, on the whole, relatively resistant. In the case of a woman of sixtyfour years, the treatment of a lesion of the ala of the nose by this method showed,

after the destruction was finished, cartilage or muscle exposed, as in a perfect anatomical dissection. The pain from this procedure is considerable as long as the process of destruction lasts. On the first application of the salicylic acid there is only slight pain, which becomes considerable in twelve to twentyfour hours, and decreases from day to day, according to the individual susceptibility. In one case the absorption of the drug was demonstrated by its presence in considerable amount in the urine. The action of the salicylic acid on the morbid tissue seems to be elective, in so far as the destruction does not progress regularly in every direction, but in cases where the affection is situated on the nose and beneath the eye it works downward and toward the sides; in cancer of the abdomen above the umbilicus, upward and toward the sides. The duration of this treatment was in the case of smaller growths two and one half to three months on an average, eight months in cancer of the abdomen.

Study of Rickets.—T. Gassmann, *Zentralbl. f. d. ges. Chir. u. i. Grenzgeb.*, found by comparative analytical chemical experiments that the proportion of calcium, phosphates, carbonates and water in the rachitic bone is the same as in the normal, but the former contains 6 per cent. less bone substance than normal, according to Werner's formula. The appearance of the disease is caused by disturbances in bone production, probably due to the increased magnesium content of the diseased bone, as our teeth, which are less resistant than those of prehistoric man, contain considerably more magnesium.

Treatment of Acute Gonorrhea in the Male.—W. Wyndham Powell, *British Medical Journal*, September 26, 1914, recommends irrigations of the anterior urethra in the acute stage, from five to six pints of a solution of potassium permanganate, varying between 1 in 2,000 to 1 in 5,000. The solution is injected at a temperature of about 100 degrees F., and with a hydrostatic pressure of at least six feet, in order to dilate the urethra to permit the exposure of the bases of all the folds. This treatment yields excellent results, and the reason that irrigation has not gained more recognition is that both insufficient pressure and insufficient fluid have been used.

THERAPEUTIC PROGRESS

Pneumosan in Pulmonary Tuberculosis.—A. E. Carver's (*Lancet*, August 8, 1914) experience of this new remedy has been very favorable. He states that he has been able to secure arrest of the disease in eleven cases, marked improvement in thirty-five, improvement in thirty-three, and no appreciable change in fifteen, while nine deteriorated under treatment. This series of 103 cases included all stages. Patients in the first two stages of Turban gave the most favorable results, as was to be expected. The dose used initially was 0.25 c.c. for an adult, this being increased slowly until 1 c.c. was given at each dose. No local reactions were encountered, though there was pain in the arm in a few cases the day after the injection. A rise in the temperature was fairly common.

Treatment of Yaws with Salvarsan.—Philip Harper, *Lancet*, August 8, 1914, was able to cure all but three cases of this disease out of a series of ninety by the intramuscular or intravenous injection of salvarsan or neo-salvarsan. Small, repeated doses have given quite as good results as larger single doses and the dangers from the drug were thus reduced to a minimum.

Zeller's Paste.—Lange, *Berliner Klinische Wochenschrift*, July 6, 1914, conducted careful observations on the actions of this silicic paste to determine its actions on normal and cancerous tissues; whether or not it was specific in the destruction of cancer cells, and the extent of its side actions. He found that the paste was not specifically destructive of cancer cells, but destroyed normal tissue quite as rapidly; that it could not be limited in its action; that it was not devoid of side actions; that its use was very painful; that its application must be prolonged to have any effects; and that it was productive of very marked and extensive scarring. He says that for all forms of tumors, benign, relatively malignant and malignant, surgical measures are the only ones to be considered.

Vaccine Treatment of Typhoid Fever.—W. P. MacArthur, *British Medical Journal*, July 23, 1914, finds from an experience in sixty-three successive cases that the early administration of autogenous vaccines in doses of from 160 to 1,500 million organisms at two or three days' interval rendered the disease milder and removed all symptoms except pyrexia. Among the group of cases not coming under treatment until after the fourteenth day of the disease no such beneficial results were observed.

Clinical Observations on Strophanthin.—Johannessohn and Schaechtl, *Deutsche Medizinische Wochenschrift*, July 9, 1914, used a pure preparation of crystalline strophanthin of Thoms both orally and intravenously in a number of cases and arrived at these conclusions: The cardiac action was similar to that of digitalis, but the general vascular action differed, for strophanthin did not appreciably raise the general blood pressure. Noteworthy was the more rapid action by mouth. There was a striking diuretic action, which

produced remarkable results in cases of edema and ascites in the briefest time. Internal administration is certain, for the drug seems to resist the action of the digestive ferments. No cumulation was observed, and is far less to be feared than with digitalis, for the union of the drug with the heart tissues is much looser than in the case of digitalis.

Digitalin.—Dr. Thomas E. Satterthwaite, of New York, said that in cardiac deficiency digitalis was their sheet anchor. Whether its administration was to be continued uninterruptedly was a question to be decided by the conditions present. By employing digitalin they avoided the disagreeable gastric effects of the crude drug, and for years he had relied almost exclusively on this; only occasionally giving a little strophanthus and nitroglycerin.

Emetine to Young and Debilitated Children.—Nathan Barlow, *American Journal of Tropical Diseases and Preventive Medicine*, June, 1914, injected one seventh grain of emetine once daily for two weeks in a sixteen months' dysenteric and malarial child. Immediate improvement was noticed. In a child aged seven years, with both amebic and hookworm infection, weighing but thirty pounds and with only five per cent. of hemoglobin, one fifth and later one third grain of emetine was given without ill effect, and rapid improvement followed.

Thigan in the Therapy of Gonorrhea.—Stuempke, *Münchener Medizinische Wochenschrift*, July 21, 1914, treated a large number of cases with this preparation, a chemical combination of silver and thigenol. It is used in the same way as protargol and other silver salts, one c.c. of the preparation corresponding to one mg. of silver. It has the advantage of producing very little irritation, possesses antiphlogistic properties, and can be used in those cases which are accompanied by severe pain—acute anterior gonorrhea, and cases complicated with epididymitis, prostatitis, cystitis and inflammation of the seminal vesicles. Its germicidal power is sufficient to cause a disappearance of the gonococci on an average in from eight days to three weeks. The injections are given five times daily, are allowed to remain in the urethra for ten minutes, and the patient is put on the customary diet for gonorrhea. It can also be used in chronic cases, but the dilution should be greater. It has not been used in gonorrhea of women to a great extent as yet, but the results in the gonorrhea of men have been very satisfactory.

Adalin in Mountainous and Tropical Countries.—Masarey, *Münchener Medizinische Wochenschrift*, July 14, 1914, used adalin in Egypt to overcome the sleeplessness which is experienced by Europeans who travel in that country. He found that after taking five grains nightly for several nights he was no longer troubled with insomnia. He also used it while traveling in Spain, where he had occasion to climb the Sierra Nevada mountain range, an altitude of over 3,000 metres. Here he found it of distinct benefit to counteract the sleeplessness and disturbance of heart action and respiration which are experienced when the change from the valleys to these altitudes takes place rather quickly. It can possibly also be used with advantage in cases of mountain sickness.

MISCELLANY

A STORY WITH A MORAL

One of the stories which Jacob Riis tells in his new volume, "Neighbors," came to him from an Arkansas rabbi. While most of the book is devoted to tales of New York life, this legend is from the folklore of Russia and is particularly interesting in that it sounds the keynote of the work—the brotherhood of man. It runs as follows:

"A woman who had lain in torment a thousand years lifted her face toward heaven and cried to the Lord to set her free, for she could endure it no longer. And He looked down and said: 'Can you remember one thing you did for a human being without reward in your earth life?'

"The woman groaned in bitter anguish, for she had lived in selfish ease; the neighbor had been nothing to her.

"'Was there not one? Think well!'

"'Once—it was nothing—I gave to a starving man a carrot, and he thanked me.'

"'Bring, then, the carrot. Where is it?'

"'It is long since, Lord,' she sobbed, 'and it is lost.'

"'Not so; witness of the one unselfish deed of your life, it could not perish. Go,' said the Lord to an angel, 'find the carrot and bring it here.'

"The angel brought the carrot and held it over the bottomless pit, letting it down till it was within reach of the woman. 'Cling to it,' he said. She did as she was bidden, and found herself rising out of her misery.

"Now, when the other souls in torment saw her drawn upward, they seized her hands, her waist, her feet, her garments, and clung to them with despairing cries, so that there rose out of the pit an ever-lengthening chain of writhing, wailing humanity clinging to the frail root. Higher and higher it rose till it was halfway to heaven, and still its burden grew. The woman looked down, and fear and anger seized her—fear that the carrot would break, and anger at the meddling of those strangers who put her in peril. She struggled, and beat with hands and feet upon those below her.

"'Let go,' she cried; 'it is *my* carrot.'

"The words were hardly out of her mouth before the carrot broke, and she fell, with them all, back into torment, and the pit swallowed them up."—*New York Evening Sun*, November 28, 1914.

NO NEED TO FEAR EATING THE MEAT OF CATTLE BECAUSE OF THE FOOT AND MOUTH DISEASE

According to the specialists of the Department of Agriculture, people even in States quarantined for the foot and mouth disease need have no fear of eating meat, provided they cook it thoroughly.

The foot and mouth disease is not easily communicated to human beings through food, although milk from a diseased cow might transmit the disease to a human being. In the case of milk, however, pasteurization will render it entirely safe. Human beings who do get the disease commonly get it from direct contact with a sick animal. It is wisest, therefore, for people to keep away from all animals having the disease, unless they are properly provided with rubber gloves, coats and boots, and these are thoroughly disinfected after each visit to the animals.

In the case of meat, as in the case of milk, it must be remembered that all herds which actually show the disease are quarantined, and neither milk nor meat from the sick animals can be sold. Sixty per cent. of the meat used in this country is produced in the nearly nine hundred Federally inspected slaughtering and packing establishments located in two hundred and forty cities. In these establishments no animal is slaughtered until it has passed an antemortem inspection and also a most rigid postmortem inspection by a veterinarian at time of slaughter. After slaughter its meat cannot leave the establishment until it has been carefully examined and stamped "U. S. Inspected and Passed." In all these establishments no animal showing any symptoms whatever of foot and mouth disease is allowed to go to slaughter, and no meat which, on post-mortem inspection, shows any suspicious symptoms of this complaint can be shipped out of the establishment. All meat suspected of coming from an animal suffering with this complaint is sent, under Government seal, to the tanks to be rendered into fertilizer. The Federal inspection stamp on meat, therefore, means that it is entirely safe.

The Federal Government, however, has no jurisdiction over local slaughter houses which do not ship meat outside of the State in which it is slaughtered. If, however, meat from such an animal did escape from one of these local slaughter houses, which are purely under State or municipal control, all danger of its communicating the disease to human beings would be removed when it is thoroughly cooked and sterilized. Those who are located near an infected region and wish to be absolutely certain of the safety of their meat should cook it thoroughly.

The disease when contracted by adults is not at all a serious illness. It commonly takes the form of slight fever sores in the mouth and a slight eruption on the fingers. In the case of small or sickly children, it may take a more serious form, especially if complicated by other illnesses.

SOME UNHEALTHY TENDENCIES IN THERAPEUTICS

In the chairman's address before the Section on Pharmacology and Therapeutics at the recent meeting of the American Medical Association, Dr. John F. Anderson, Director of the Hygienic Laboratory, Washington, D. C. (*Journal A. M. A.*, July 4, 1914), calls attention to some unhealthy tendencies in therapeutics at the present time. These, he says, have been particularly in evidence as regards the use of certain biologic products. While we formerly used to

teach that drugs given by the mouth would relieve or cure, it now seems to be the fashion to teach that in order to secure a surer and more lasting effect we must introduce the drugs into the body parenterally, and some physicians seem to ascribe virtue to almost any preparation. Some agents that have been put forward with extravagant claims are clearly fakes, but others are of little more value, such as the Friedmanns' vaccine, the Duket treatment, snake poison for epilepsy and other conditions, the use of bacterial products for rheumatism, etc., vaccines for nonbacterial diseases and mixed vaccines for the treatment of almost any ill; mineral oil for almost every form of constipation and various remedies for pellagra—all these are among the things enumerated. Bacterial therapy is undoubtedly of value in some cases, but it is being driven now far beyond its proper limitations, and some of the widely exploited preparations have been proven clearly harmful and have even caused death. Advances are necessary and clinical trials must be made, but only with adequate controls of untreated cases and the closest watching of every stage for the taking of an unbiased record. It is difficult to secure these things outside of a well equipped hospital, but until a new treatment has received abundant confirmation of this sort it is unjust, to use no stronger word, to apply it promiscuously to patients not under constant observation and not amenable to instant emergency relief. Not only sales, but attempts to ship dangerous biologic products in interstate traffic, should be prohibited, and not only that, but excluding them and their advertising from the mails. After all, he says, it devolves on the medical profession to use wide discretion in their endorsement of preparations, and it should appreciate its responsibility.

CRIMINALS FROM NORMAL PARENTAGE

Dr. Reynold Webb Wilcox, New York, American Therapeutic Society, May 29, 30, 1914, said that what Col. Woodruff had stated about families was true. Those who had looked up the history of the "Jukes" family had selected the black sheep, and those recording that of the Edwards family had gone into it for the purpose of picking out the good members. Jonathan Edwards' first wife had been so bad that he finally had to divorce her; yet it was a fact that all the children of this bad wife were good and accomplished, while all the children of the second wife, who was of unblemished character, were mediocre. The criminals often came from the normal families in the community. The families of the four gunmen recently executed at Sing Sing were not criminals. There was one class of persons which had not been fairly treated, namely, the feeble minded. It was rightly held that these unfortunates ought to receive the same care as the insane and the imbecile; yet it was a fact that in the State of New York only 4,000 out of the 19,000 in the State were now under custodial care. He believed that this society should recommend such legislation as would correct this condition.

WHY PROGRESS IS SLOW

In one of his aphorisms, Wundt says that "men think very little and very seldom." The truth of this dictum is indisputable. . . .

Herbert Spencer walked about London, notebook in hand, listening to and writing down the matter of the conversation of passersby. He found it to be of the most ordinary character, chiefly personal, such as "And how was Jemmy when you left him?" or, "She never gives more than tenpence a yard for it," etc. An action, like thought, is often of the simplest kind; however difficult at first to acquire, it has become an easy and self sustaining reflex. When active thought or energy of a new kind is carried on for a long time or under stress, people break down under it; the work can be done for only short periods. It is the custom to point to the great age to which scientific and other very busy men live; but when they do, it is because they have, as a rule, an occupation which they are fitted to carry on without strain.—T. CLAY SHAW, *Lancet*, London.

VIS MEDICATRIX NATURAE

One of the most interesting facts in regard to the regenerative capacity—Nature's power of healing—is its adaptive distribution. It tends to occur in those animals and in those parts of animals which, in the natural conditions of their life, are particularly liable to nonfatal injury. Longlegged and lanky animals, like crabs and star fishes, usually show much of it; a selfcontained globular animal, like a sea urchin, shows little. The chameleon is one of the few lizards which cannot regrow its tail, for it keeps it safely coiled around the branch. Another very interesting fact is that what is regrown is not always quite true to pattern—the crab does not always get an eye for an eye, but it may be an antenna for an eye. The lizard does not always regrow its own tail, but its grandfather's, so to speak.—J. ARTHUR THOMSON, *Brit. Med. Jour.*

ANTENATAL HYGIENE, ITS INFLUENCE UPON INFANTILE MORTALITY

A. Routh (*Brit. Med. Jour.*, February 14, 1914) says that we are faced with four well defined conditions which are reducing the number of infants needed to replenish the population: postponement of marriage; the artificial prevention of fertilization of the ovum by one or both of the potential parents; antenatal mortality; and infantile mortality during the first year of life. As fertility diminishes with advancing age, change in the date of marriage must have an appreciable effect in diminishing the birth rate, and represents, the Registrar General states, 1.56 per cent. of the total reduction in the birth rate. The extent to which the artificial prevention of maternity is carried in any nationality can only be roughly estimated by the difference between the past and the present birth rate. The Registrar General says that if the fertility of married women in proportion to their numbers had been as high in 1911 as in 1876-1880, the legitimate births would have numbered 1,273,698, instead of the 843,505 actually recorded. This means a potential loss to the nation of 430,193 lives in the one year (1911). Adopting the moderate estimate of four abortions to each stillbirth, we get a total of 98,680 abortions, premature labors and stillbirths in 1910, and 96,925 in 1911, not very different from the number of deaths of

children under one year of age from all causes in the same years, namely, 94,579 in 1910, and 114,600 in 1911. The total live births in 1910 were 896,962, and in 1911 881,138, so that the antenatal deaths were in proportion of one to every nine births, about 11 per cent. in both years, and this is probably far less than the real percentage. The dangers to which the fetus is directly or indirectly liable may be relieved by philanthropic, legislative and medical means. The first includes assistance by supplying nourishing food and sanitary dwelling rooms and restriction of industrial employment late in pregnancy. The writer advocates also a small weekly pension, to be paid after the sixth or seventh month, when the woman has voluntarily reported herself pregnant, in addition to the present maternity benefit of 30 shillings now paid after birth. If poor pregnant women could be sent to country homes or sanatoriums during part of their nine months' expectancy, very great good could be done. The writer also urges earlier notification and registration of pregnant women and compulsory registration of stillbirths.

CRIMINALS AND THE ANTISOCIAL DIATHESIS

There is no such thing as a distinct criminal type. A careful study of anthropology does not justify the conclusion that there is such a type. Our prison population, made up as it is of the weaklings of society, who are incapable of and unable to maintain their places in the competitive struggle for existence, are not criminals in the deterministic sense, but they are necessarily of that diathesis from which we may expect, to a greater or less degree, antisocial attitudes.—D. C. PEYTON, M.D., *Journal Indiana State Medical Assn.*

THE DUCK AS A PREVENTIVE AGAINST MALARIA AND YELLOW FEVER

The duck is one of the greatest known enemies of the mosquito, and, therefore, of yellow fever and malaria, says Samuel G. Dixon, M.D. LL.D., *Journal American Medical Association*, October 3, 1914. It has possibly one of the widest geographical ranges of any of the birds. It is even found in the Arctic and Antarctic regions; also in Australia, where bird life is so peculiar.

After trying the ability of fish to devour larvae and pupae of mosquitoes, with varied success, I built two dams near together on the same stream, so that each would have the same environment for the breeding of mosquitoes. Each covered nearly 1,400 square feet. In one, twenty mallard ducks, *Anas platyrhynchos*, were permitted to feed, while the other was entirely protected from water fowl, but well stocked with goldfish, *Carassius auratus*, variety *americanus*.

The one in which the ducks fed was for several months entirely free from mosquitoes, while the pond protected from ducks and stocked with fish was swarming with young insects in different cycles of life.

To the infested pond ten well fed mallard ducks, *Anas platyrhynchos*, were then admitted, and as they entered the pond they were first attracted by the larval batrachians, tadpoles. They, however, soon recognized the presence of larvae and pupae of the mosquito,

and immediately turned their attention to these, ravenously devouring them in preference to any other foodstuff present. At the end of twentyfour hours no pupae were to be found, and in fortyeight hours only a few small larvae survived. The motion of the water, made by the ducks, of course, drowned some of the insects—what proportion cannot be estimated.

For some years I have been using ducks to keep down mosquitoes in swamps that would have been very expensive to drain, but I never fully appreciated the high degree of efficiency of the duck as a destroyer of mosquito life until the foregoing test was made.

In the work of Howard, Dyar and Knab, entitled "Mosquitoes of North and Central America and the West Indies," will be found an essay on the destruction of the mosquito and housefly, by Mr. William Beutenmueller, who expresses the opinion that aquatic birds could be used for the purpose of destroying mosquito larvae.

Mr. William Lockwood, of Boston, an artist, who made a hobby of raising aquatic fowl, also expresses an opinion that the spoon-billed duck is particularly adapted to the destruction of mosquito larvae resting on the surface of the water.

Mr. McAtee, of the Biological Survey, found mosquitoes in the gizzard of the mallard duck. While other birds, fish, spiders, batrachians, arthropods and reptiles are all enemies of the mosquito, none of them have the wide geographical range and the capacity of devouring large numbers of the larvae and pupae on land and water as the duck.

Ducks can be used in ponds, swamps, both open and in jungles, and can be driven from place to place. Not only can they be generally used to keep down mosquito life, but they also furnish a delicious and valuable foodstuff.

WHAT CONSTITUTES IMPURE AIR

There has been a good deal of misunderstanding as to what constitutes impure air. There is always in the ordinary respired air of buildings and houses too little carbonic acid gas to do any harm to an individual. Also, a varying content of oxygen, within ordinary limits, is not an important factor in the effect of the air on human beings. It is only heat and extra moisture in confined, respired air that is depressing. Also, stagnant air is more depressing than air in motion, even when it is of the same constituency. Of course, dust laden air is always injurious. In artificial ventilation in hospitals, schoolrooms and auditoriums, screening from outside dust and vacuum cleaning from inside dust are essential; in fact, stagnant dust is bad and moving dust is worse. (*J. A. M. A.*, October 3, 1914.)

Too great heat is often maintained in winter in schoolrooms and hospital wards, especially in those for children. Also, a great variation of day and night temperature in hospital wards is not advisable. While dry air is not necessarily unhealthful, as noted in high altitudes, deserts, plains, etc., still a normally regulated moisture should pervade hospital wards and operating rooms, which latter are gen-

erally too dry, unless steam sterilizers are in use. Schoolrooms not overheated will probably be normally moist from outside air.

One great disadvantage of stagnant, overheated, overmoist air seems to be its effect on the skin. The skin cannot normally breathe, so to speak; moisture remains on its surface, the skin glands cease to properly act, and the surface circulation and heat elimination are interfered with and the person feels depressed, metabolism is impaired, the appetite fails and loss of nutrition occurs. Every one realizes the refreshment felt when a window is suddenly opened in a stagnant room. Hence the danger to health in a school, factory or store where the air is stagnant, dusty, overmoist or overheated.

The value of the open air treatment of many diseases has been incontrovertibly demonstrated. Overheated rooms are bad for the sick, and especially bad for sick babies. An infant may have his body temperature raised by a continued sojourn in an overheated room or by being long subjected to summer heat, at 85 degrees F. or over.

TREATMENT OF LYMPHOSARCOMA BY BENZOL

R. G. Moorhead (*The Medical Press*, June 24, 1914) reports: The results obtained in cases of leucemia by the internal use of benzol suggest that the same remedy might be of value in cases of lymphosarcoma. If it should prove to have any effect in these cases, a ray of hope would be held out to patients suffering from intra-thoracic or intraabdominal growths, for which at present no treatment of any value is available.

With the object of suggesting the use of the drug on a large scale in these cases, I put on record in the briefest manner the notes of a case that I have been treating for the last six weeks. The case is still under treatment, and in consequence the record is necessarily incomplete, but the results so far obtained are sufficiently promising to justify further use of this drug. Possibly it has already had a trial, as pressure of work prevents me from looking up the literature.

Case.—P. G., a farmer, aet 65, was admitted into my wards on May 11, 1914. He stated that last October he first noticed a swelling on the right side of his neck. In December he began to have difficulty in breathing, and frequently was compelled to sit up all night owing to the trouble in drawing his breath. He was also much troubled with cough of an irritable nature and by a feeling of pressure in his chest, but otherwise felt quite well. The symptoms gradually got worse, and finally led to his seeking relief at the hospital.

On admission, a group of enlarged glands was found on the right side of the neck, and a similar but much smaller group on the left side. There was distinct dulness on percussion over the manubrium sterni, and the cardiac dulness was increased. Stridor was present and some huskiness of the voice, and a laryngeal examination showed some weakness of the right vocal cord. The spleen was palpable, but not tender. An X ray examination showed the presence of a large opaque mass filling up the greater part of the superior mediastinum and apparently extending down on each side of the pericardium.

The size of the heart itself was normal. The blood showed moderate anemia; the white cells numbered 11,200 per c.mm., and there was a slight excess of lymphocytes; Wassermann test negative. No other abnormality was found as a result of careful examination, the cardiac, respiratory and other systems being normal, with the exception of what has been already stated.

A diagnosis of lymphosarcoma was made, and it was determined to try benzol. A drachm of the drug was given at first, but the dose was rapidly increased until 5 drachms daily were given. X ray exposures have also been given twice weekly, the rays being concentrated over the manubrium sterni.

The result up to the present is as follows: The glands in the neck have almost completely disappeared, the dulness over the manubrium sterni has gone, the patient's stridor has gone, and the cough and huskiness are much less. The patient sleeps now without trouble, and in every way feels much better. An X ray examination still shows opacity over much the same area as before, but the outlines are apparently less defined. The spleen is no longer palpable. There has been a slight diminution in the white cell count; and, so far, no unpleasant symptom has developed from the benzol.

As already stated, this report is quite incomplete. At any time a return of symptoms may take place, and in any event months must elapse before one can determine whether any real good has been effected. However, as it is the first case of intrathoracic lymphosarcoma that I have seen benefit by any treatment, and as there are the definite and unmistakable signs of the enlarged glands in the neck disappearing, I think I am justified in reporting the case now with a view to stimulating the use of the drug, and the careful observation of the results obtained, and hope to publish a much more complete report later on.

MEAT IN THE DIETARY

It is not proposed to discuss the relative nutritive value of various meats, or the rapidity with which they are digested, but briefly to note a few practical conclusions taught by the physiology of nutrition. (*Jour. A. M. A.*, May 2, 1914.)

1. Ordinarily we should consider that the flesh of fish and shell fish, except perhaps oysters and clams, and of chicken and birds is meat.

2. No marked chemical difference exists between red and white meats.

3. Meat having considerable amounts of fat deposited between its fibers, as fresh pork (sparerib), does not digest so readily as lean meat, such as beef.

4. The delicate, tender portions of porterhouse steak, roast beef, young tender lamb chops and the breast of a young chicken or bird will digest more readily and cause less gastrointestinal disturbance in those whose digestion is imperfect than will other meats.

5. The important point is, that the final extractives of all meats are alike, and if these are not easily excreted by the kidneys, all meats should be prohibited. This is true in acute nephritis, and gen-

erally true in chronic parenchymatous nephritis. All acute inflammations of the skin are better on a no meat diet, and often patients with chronic eczema are benefited by excluding meat from their diet.

6. Any particular meat that causes indigestion would harm such a patient more than a meat that he digests readily, but this is because of the formation of byproducts and not because the ultimate end-products of the several meats materially differ.

7. It is generally true that unless there is a good deal of intestinal putrefaction and high bloodpressure, meat once a day is better than no meat for a patient with chronic interstitial nephritis. Such a patient may very well have a vegetable or milk day, as the diabetic has a greens day, once a week.

8. A high bloodpressure may be more or less lowered by excluding meat from the diet.

9. In all acute rheumatic conditions the patient is better off without meat, because it produces more systemic acidity, and, therefore, diminishes the alkaline salts of the blood.

10. Gout is neither prevented nor cured by interdicting the use of meat, but it is improved (and uric acid deposits are more or less prevented) by withholding all foods rich in nucleoproteins, such as sweetbread, liver, shadroe, etc. Also, it has been shown that alcohol taken with a meal containing meat results in the formation or excretion of more than the normal amount of uric acid during the final metabolism of the meat.

11. The cure of tuberculosis is best aided in this climate by a moderate daily allotment of meat.

12. Because meat stimulates the thyroid, it should be withheld in all cases of thyroid hypersecretion. It should be given in thyroid hyposecretion.

13. Most neurasthenics need meat.

14. When kidney function is impaired, large amounts of meat extracts and beef teas or broths should be withheld, as they, more readily than meat, cause retention of waste products.

15. Although meat broths, whether homemade or artificially prepared, offer little, if any, real nutrition, they may stimulate not only the circulation and the nervous system, but also nutrition, and may, by stimulating the digestive secretions, aid the digestion of other foods. Hence, the kidneys being sufficient, while we should not depend on beef tea as a food or real nutriment, it may be of marked benefit in serious illness. Also, a cup of bouillon or consommé before dinner may have a physiologic use.

The Dietetic and Hygienic Gazette, which is just completing the thirtieth year of its existence, has been purchased by The Critic and Guide Company, and beginning with January, 1915, will be consolidated with *The Critic and Guide*, and the combined journals will be under the editorship of Dr. William J. Robinson. The offices of publication are at 12 Mt. Morris Park W., New York City.

BOOK REVIEWS

The Cancer Problem. By WILLIAM SEAMAN BAINBRIDGE, A.M., Sc.D., M.D., Professor of Surgery, New York Polyclinic Medical School and Hospital; Surgeon and Secretary of Committee of Scientific Research, New York Skin and Cancer Hospital; Consulting Surgeon, Manhattan State Hospital, Ward's Island; Honorary President, First International Congress for the Study of Tumors and Cancers, Heidelberg, 1906. New York: The Macmillan Company, 1914. Price \$4.00 net.

This book defies adequate review because even so simple a matter as itemizing its contents would far exceed the limits of space at the reviewer's disposal. The Preface closes with the expression of a modest hope that the book may be of interest and profit to students of the cancer problem, and then the mere superficial perusal of succeeding pages reveals such a storehouse of interest and profit that any adverse criticism seems sandbagged at birth. A physician who can state that he has carefully read any half dozen pages selected at random from between the green covers of this volume, and after taking thought, can then affirm that he was neither interested nor profited, is probably suffering from mental aberration. The truth is not in him.

The work in question is encyclopedic in style and reminds one of an excellent system of treatises issued under the strict supervision and pruning of an editor who wields both blue pencil and scalpel with equal freedom from error or mistake.

Original work is not the main factor in insuring a successful issue, but an all important element is good judgment. Had one a special and ample library at his command he might, with unlimited time, get together such a volume, but it would be dry reading indeed if he lacked the constant workaday practical experience which has taught this author to select choice examples of the useful, the curious and the instructive, and then to state them all in a literary style so clear, plain and free from verbosity or padding that the very "Wayfaring man, though fool, shall not err" in grasping the gist of the subject matter. Various methods of treatment are carefully explained, as are Kangri baskets, Witches' Looms, Crown galls, Broussins, Site incidence, Sport Albino, prophecy and many other things, including strange funeral cortèges. Should the question arise, "What have these to do with the cancer problem?" the serious reader would reply simply, "Much." Possibly the publishers might answer, "They serve to make a physician neglect his business until he completes his reading of the book." Both would be quite correct, for the author has so crammed his pages with fascinating combinations of history, geography, philosophy and surgery that every little while a novel and valuable viewpoint is obtained, even though the matter may be derived from sciences which are not usually considered as cognate.

Not the least helpful paragraph in the book is this quotation:

"The savage trusts to his amulet; the civilized man submits himself, with childish simplicity, to the presence of the quack. It is a strange world, but, such as it is, open and honorable Medicine has lived and worked in it and must make the best it can of so wonderfully varied an environment." To him who reads between the lines the book solves other problems besides that of cancer, even though the writer clings closely to his text throughout.

Case Histories in Pediatrics. A Collection of Histories of Actual Patients Selected to Illustrate the Diagnosis, Prognosis and Treatment of the Diseases of Infancy and Childhood, with an Introductory Section on the Normal Development and Physical Examination of Infants and Children. By JOHN LOVETT MORSE, A.M., M.D., Associate Professor of Pediatrics, Harvard Medical School; Associate Visiting Physician at the

Infants' Hospital and at the Children's Hospital, Boston. Second Edition. W. M. Leonard, Boston, Publisher, 1913.

The method of case teaching was found so useful in instruction to undergraduates and graduate students that it was utilized in the presentation of the subject of pediatrics to the practitioner, and found to meet the approval of the profession. In this volume, the second edition, the number of case histories are double those in the first, in order, as our author declares, to more completely cover the subject of pediatrics. An interesting chapter on the Normal Development and Physical Examination of Infants and Children has been added, making in all a volume of over six hundred pages.

The work is divided into sections, some two hundred case numbers being given in detail. First we have Diseases of the New Born; to be followed by Diseases of the Gastrointestinal Tract; this by Diseases of Nutrition; Specific Infectious Diseases; those of the Nose, Throat, Ears and Larynx; Bronchi, Lungs and Pleura; Heart and Pericardium; Liver; Kidneys and Bladder; Blood; Nervous System and Unclassified Diseases.

An admirable feature of these case histories will be found in the fact that the diagnosis is not given until the end of the history. This insures the close attention of the reader, for the case is not complete until it is read through. We are assured that the diagnosis and prognosis are correct and that the treatment, recommended in the text was that actually employed. There are a number of well selected illustrations, which help to illuminate the text.

The book will be found helpful to all those who treat diseased children.

Case Histories in Neurology. A Selection of Histories Setting Forth the Diagnosis, Treatment and Postmortem Findings in Nervous Diseases. By E. W. TAYLOR, A.M., M.D., Instructor in Neurology, Harvard Medical School; Asst. Physician, Department of Neurology, Massachusetts General Hospital; Visiting Neurologist, Long Island Hospital, Boston. W. M. Leonard, Boston, Publisher, 1912.

We have here another work of Case Histories similar to the one on pediatrics reviewed above. Like its fellow, it was conceived to take up certain cases illustrating symptomatology, diagnosis, treatment and pathological findings in the more frequent disorders of the nervous system. Actual cases are cited in detail, followed by explanatory remarks. Special attention has been given to the important matter of differential diagnosis. The sections include Peripheral Nerves, Spinal Cord, Brain, Conditions of Vague or Undetermined Pathological Bases and Psychoneuroses.

The work consists of some three hundred pages, is illustrated, well printed on good paper and handsomely bound. It should be widely read.

The Heart in Early Life. By G. A. SUTHERLAND, M.D., F.R.C.P., Senior Physician to the Hampstead and Northwest London Hospital, Physician to Paddington Green Children's Hospital. Oxford University Press, American Branch, 35 West 32d Street, New York, Henry Frowde and Hodder and Stoughton, London, 1914.

The author states in his preface that this work is an attempt to enable the young practitioner to fill up some gaps which may have been left after his medical course has been finished. That it is not a systematic text book, but deals with clinical problems of cardiac disturbances and diseases during childhood and youth as they present themselves in the ordinary routine of practice. We believe that he has accomplished his purpose, for much valuable information is to be found between the covers. The chapter on Dilatation and Hypertrophy of the Heart is especially illuminating. The same may be said of the chapter on valvular Murmurs. In fact, the whole subject matter is skillfully treated.

The Physician's Visiting List for 1915. Sixty-fourth year of its Publication. Philadelphia: P. Blakiston's Sons & Company, 1012 Walnut Street. Price \$1.25.

This old friend is welcome. What a respectable age. That the list fills a want is attested by its popularity. Really, one would not be able to get along without it. To those, if there be any, who are not acquainted with Blakiston's Visiting List, we suggest an immediate purchase.



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